AN EMPIRICAL INVESTIGATION ON FIRM-LEVEL PERFORMANCE OF CROSS BORDER MERGERS AND ACQUISITIONS

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Abstract

This empirical study investigates the performance of cross border M&A. The first stage is to identify the determinants of making cross border M&A complete. One focus here is to extend the existing empirical evidence in the field of cross border M&A and exploit the likelihood of M&A from a different perspective. Given the determinants of cross border M&A completions, the second stage is to investigate the effects of cross border M&A on post-acquisition firm performance for both targets and acquirers. The thesis exploits a hitherto unused data base, which consists of those firms that are rumoured to be undertaking M&A, and then follow the deal to completion or abandonment. This approach highlights a number of limitations to the previous literature, which relies on statistical methodology to identify potential but non-existent mergers.

This thesis changes some conventional understanding for M&A activity. Cross border M&A activity is underpinned by various motives such as synergy, management discipline, and acquisition of complementary resources. Traditionally, it is believed that these motives will boost the international M&A activity and improve firm performance after takeovers. However, this thesis shows that such factors based on these motives as acquirer's profitability and liquidity and target's intangible resource actually deter the completion of cross border M&A in the period of 2002-2011. The overall finding suggests that the cross border M&A is the efficiency-seeking activity rather than the resource-seeking activity. Furthermore, compared with firms in takeover rumours, the completion of M&A lowers firm performance. More specifically, the difficulties in transfer of competitive advantages and integration of strategic assets lead to low firm performance in terms of productivity. Besides, firms cannot realise the synergistic effect and managerial disciplinary effect once a cross border M&A is completed, which suggests a low post-acquisition profitability level.

Keywords: determinants of M&A, productivity, profitability, efficiency, takeover rumour.

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Chapter One: Introduction

1.1 Introduction

Many companies have resorted to corporate restructuring and strategic expansion by virtue of mergers and acquisitions (M&A)[1]. The corporate investment in M&A activity has become a trend to maximise a firm's profit and expand beyond the extent of its organic growth. M&A are an important means of reallocating resources to where they are most needed and of removing underperforming management. In the first decade of the new millennium, global M&A activity is fuelled by several factors such as readily-available credit, historically low interest rates, rising equity markets, technological change, and industry consolidation (Henry, 2002). Since mid-2003, the volume of global M&A activity increased through to mid-2007 (Bena, et al., 2008). In terms of dollar volume, M&A transactions reached a record level (US$ 1.045 trillion) worldwide in 2007 (UNCTAD, 2014). However, the outbreak of the subprime mortgage crisis in the US during the second half of 2007 made the financial system become exceedingly selective and largely withdrawn from financing highly-leveraged M&A transactions. By 2008, a combination of record high oil prices and a reduced availability of credit led most of the world's economies into recession, reducing global M&A activity (US$ 0.626 trillion) by more than one-third of its previous level. In spite of the slump in M&A activity due to the global recession, the dramatic drop in energy prices and expansionary monetary and fiscal policies are stimulating the volume of global M&A activity to previous levels. The total value of cross border M&A in 2013 was approximately US$ 0.349 trillion (UNCTAD, 2014). Increasing international trade has brought the opportunities and challenges to engage in cross-border M&A (Hitt et al., 2000), in particular, at the post-acquisition stage (Child et al., 2001).

M&A has provided important implications for various economic actors and for the operation of economies. As for actors, these would include shareholders, corporate management teams, employees, consumers, creditors, and governments and their agencies. As for economic welfare, there are potential consequences (both positive and negative) for the capital, product and labour markets. These consequences could include: change in concentration, abuse of market power

[1] The abbreviation for mergers and acquisitions, M&A will be employed throughout the chapter However, in a strict sense there is a clear distinction between the two words. A merger is an incorporation of two separate firms into one single entity (Titman and Grinblatt, 2006), whereas an acquisition refers to one firm acquiring the majority of shares from another firm (Straub, 2007). Although there is the formal distinction between mergers and acquisitions, both terms frequently replace each other regardless their real strict meaning (Titman and Grinblatt, 2006). Cross border M&A is defined as deals between an acquirer firm and a target firm with their headquarters located in different home countries (Shimizu et al., 2005).

and featherbedding, international competition, rationalization of excess capacity, the realisation of economies of scale and scope, as well as other synergistic benefits. It is impossible to expect that any one study could contain all these factors. However, these factors are important to be addressed for policy makers in both the public and private domains. Thus the application of the knowledge from empirical evidence may provide insights into consequences of M&A for both public and private welfare.

Some industrial economists and financial economists attempt to exploit these consequences of M&A. Although they have not achieved a consistent result from their respective empirical evidence, they present the same question. For instance, Caves (1989) and Bradley (1987) present the question of whether M&A can improve the efficiency of corporate assets. This question can be readdressed in a slightly different way: whether it is the case that efficient corporate management teams discipline the less efficient. Besides, it is suggested that the analysis of firm performance provides an important tool to assess the effects of M&A. From previous literature, a firm's productivity and profitability are two effective indicators to measure the performance of firms. They are distinguished from the aspects of firm's internal returns and external returns respectively (Girma et al., 2006). Therefore, the question of evaluating the effects of M&A has evolved to the assessment of post-M&A firm performance in terms of productivity and profitability.

This thesis will challenge some conventional understanding of M&A activity. Cross border M&A activity is underpinned by various motives such as synergy, management discipline, acquisition of complementary resources, and so on. Traditionally, it is believed that these motives will boost the international M&A activity and bring positive effects after takeovers. However, the finding from this thesis will show that some factors based on these motives actually deter the completion of cross border M&A. Besides, those completed deals fail to realise their objectives underpinned by some mentioned motives. The completion of M&A lowers firm performance.

Given the increasing number of cross border M&A and their growing importance in the global market, a better understanding of the opportunities and challenges for firms following this strategy is required. It is interesting to identify the reason why the number of cross border M&A increases. What motives support these takeovers? Besides, almost all M&A deals are subject to

takeover rumour[2] before they actually take place in the market. However, some deals do not subsequently complete. We start out, therefore, by analysing the factors which deter the further completion of cross border M&A and those which facilitate this activity. In addition, do these motives achieve their objectives? In other words, how do these takeovers perform after the event of M&A? This type of research on M&A activity is mainly concentrated in the domain of international business (IB) study. Previous literature has identified some important motives behind M&A activity such as synergy, management discipline and acquisition of complementary resources. This thesis will build on the analysis of these motives and explore the reasons that make a cross border M&A deal complete from an M&A rumour. This point will be discussed in detail in the contribution section of this chapter. Additionally, in order to examine the firm performance after the event of M&A in terms of the internal returns and external returns (Girma et al., 2006), some factors are adopted from both IB and finance disciplines.

Furthermore, the present research will adopt an *ex-post* study to analyse performance of M&A. The issue surrounding performance of corporate M&A continues to experience considerable controversy and disagreement in the literature. According to Tichy (2001), the scholars in finance and industrial organisation have predominantly studied this area from different perspectives. The financial academics assess stock market reactions to M&A announcements with an event-study approach. They generally find the positive effects of acquisitions on the average return from the aspect of firm's stock price. They argue that M&A can effectively allocate spare resources through best management. However, the stock price cannot reflect the actual operation and true performance of firms because it only represents the expectation of shareholders on the firm's future value. Besides, the event studies used by financial scholars neglect the rapid detriments of shareholder value afterwards M&A announcements. This research will not adopt the event study approach from the financial perspective. From another point of view, the industrial organisational academics generally report negative gains from M&A for participating firms. They mainly use the *ex-post* study approach to examine balance sheet data. It is argued that this approach tends to reveal the actual operational performance of firms in M&A activity. Therefore, the present research will mainly focus on the *ex-post* study approach to investigate firm performance in M&A activity.

[2] A deal status indicating that there is an unconfirmed report, or an announced deal but the identity of one of the parties is not known, e.g. Company A is to buy a German engineering firm for GBP 5 million (source from Zephyr user guide).

The remainder of this chapter will provide the theoretical and historical context for the review of the empirical literature and methodological issues that follow in chapters 2 and 3, and the empirical research reported thereafter, in chapters 4 through 6. The second section reviews the research context of M&A activity and extant research on cross border M&A. The third section presents the research questions and objectives. To achieve the research objectives, the main contributions of this project are listed in the fourth section. The fifth section discusses some implications for policy and economy. The final section presents a summary and conclusions.

1.2 Research Context of Cross Border M&A Activity

Before the research questions are presented in detail, it is necessary to introduce some research background of M&A activity and dominant research trend of cross border M&A. The industrial consolidation and privatisation, and the liberalisation of economies accelerate the growth of cross-border M&A. As an alternative entry mode of foreign direct investment (FDI), cross border M&A involves the ownership change and investment flows in existing entities rather than directly increasing the employment or production capacity in the host country (Harris, 2009). Firms often choose cross border M&A as their investment type to enter new and lucrative international markets, especially when there is a high entry barrier to new markets, an excess production capacity in the host industry, a requirement of rapidly occupying the markets, or a possession of valuable proprietary assets in target firms which can build a competitive advantage immediately (Harris and Robinson, 2002).

The academic literature on cross border M&A spans various disciplines, including strategic management, international business, human resource management, industrial economics and finance. The research emphasises a number of important issues, such as mode of entry (Andersen, 1997; Barkema and Vermeulen, 1998; Brouthers and Brouthers, 2000; Hennart and Reddy, 1997; Kogut and Singh, 1988), performance outcomes from acquisitive entry (Brouthers, 2002; Li and Guisinger, 1991; Nitsch et al., 1996), and shareholders' wealth creation by cross border M&A (Datta and Puia, 1995; Harris and Ravenscraft, 1991; Kang, 1993; Markides and Ittner, 1994; Morck and Yeung, 1992). They also study post-acquisition issues such as integration processes (Child et al., 2001; Inkpen et al., 2000; Lubatkin et al., 1998; Olie, 1994; Weber et al., 1996), integration processes from an employee viewpoint (Risberg, 2001), post-acquisition turnover of acquired firm executives (Krug and Hegarty, 2001; Krug and Nigh, 2001), post-acquisition performance of acquired (Very et al., 1997) and acquiring firms (Larsson and Finkelstein, 1999; Morosini et al., 1998), and the resulting knowledge transfer

and organisational learning (Bhagat et al., 2002; Bresman et al., 1999; Vermeulen and Barkema, 2001).

The focus on M&A activity is considerably different across the various disciplines. A major focus of the research in industrial economics is on whether M&A create, destroy or merely redistribute economic value through market concentration and the realisation of economies of scale and scope (Barton and Sherman, 1984; Mueller, 1985; Scherer and Ross, 1990; Chatterjee, 1992). Finance theory in turn focuses on the realisation of tax advantages (Hayn, 1989), risk diversification (Mueller, 1969; Amihud and Lev, 1981; Shleifer and Vishny, 2003) or the realisation of financial gains through the acquisition of undervalued targets (Ravenscraft and Scherer, 1987a). Management theory on the other hand is built on agency theoretical considerations in interpreting M&A through the pursuit of personal goals or hubris on the part of management (Jensen, 1986b; Roll, 1986). Finally, the literature on transaction costs focuses on the costs arising from market transactions and the advantage of their internalisation through M&A (Teece, 1982; Williamson, 1985).

Because of the international nature, the dynamics of cross-border M&A are impacted by different economic, institutional, and cultural structures across countries (Hofstede, 1980; House et al., 2002). When discussing the firm's choice of entering a new foreign market, various explanations support cross border M&A, such as 'internalisation' and 'assets-seeking' approach (Buckley and Casson, 1998; Wesson, 1999). In particular, Buckley and Casson (1998) indicate that the establishment of foreign affiliates through M&A can save huge learning costs and reduce a high level of competition. However, M&A may generate some immediate costs due to issues associated with integration and formulation of internal trust in the post-acquisition stage. Caves (1996) argues that multinational enterprises can improve their profitability through M&A by obtaining local knowledge embodied in the target firms and by reducing uncertainty. Martin et al. (1998) found that international M&A may be motivated to take advantage of a new opportunity or to avoid a possible future threat. Through takeovers, acquirer firms are able to learn new knowledge and acquire new capabilities. Furthermore, Wesson (1999) notes that only if the foreign acquirer firms exert more advantages in using some already possessed assets than their local competitors, the acquired local asset can show a greater value after being incorporated into foreign acquirers. Otherwise, a foreign investor could not apply the local assets more efficiently than local rivals.

The research on cross border M&A has been established upon the dominant theoretical

foundations from economic perspectives such as transaction cost economics (TCE) and an ownership – location - internalisation (OLI) framework for a long period (Dunning, 1977; Williamson, 1975). Based on these frameworks, cross border M&A is often investigated in the context of FDI, and researchers pay more attention on entry mode decisions and resulting value creation. This stream of research aims to minimise the transaction costs and maximise the effective exploitation of a firm's ownership advantage. Thus firms can reduce the uncertainty and risk due to different national cultures and institutional settings and improve the efficiencies in the entry of foreign markets.

Recent trend of researching the value of international expansion and cross-border M&A also includes the resource based view (RBV) and organisational learning (OL) perspectives (Barkema and Vermeulen, 1998; Madhok, 1997; Vermeulen and Barkema, 2001). Furthermore, the focus has been shifted from the antecedents of M&A to the processes and outcomes of post-M&A activities (Child et al., 2001). However, little insight into M&A implementation processes is concerned in TCE and OLI frameworks. It is worthy of investigating the processes and outcomes of cross border M&A from TCE and OLI perspectives.

It is found that most firms exhibit a low ability in international operation during cross border M&A. Such underperformance of firms is caused by various factors such as organisational compatibility, technological applicability, the support from local political environment, and communication between acquired affiliates and parent headquarters during the integration process (Harris, 2009). According to OLI and IB frameworks, some challenges and risks also come with cross border M&A, such as 'liability of foreignness' (Zaheer, 1995) and 'double-layered acculturation' (Barkema et al., 1996). These factors contribute to the explanation of why international M&A is not always successful. For example, it is difficult for acquirer firms to adapt and learn from both the local market and target firm in the host country due to uncertainty and information asymmetry in foreign markets (Kogut and Singh, 1988; Zaheer, 1995). It is also hard for acquirer firms to achieve their strategic conceptions completely because of differences in national culture, consumption custom, commercial practices and governmental regulations (Kogut and Singh, 1988). Therefore, the 'liability of foreignness' and 'double-layered acculturation' prevent firms acquiring new knowledge and capabilities in cross border M&A activity.

The research on cross border M&A has studied various factors from aspects of country level, industry level and firm level. According to Shimizu (2004), at national and industry levels,

M&A activity is found to be highly related to factors such as capital, labour, natural resource endowments and institutional variables (e.g. the legal, political, and cultural environment). At the firm level, acquirer firms firstly need to identify and evaluate the characteristics of potential targets in the host countries. After that, acquirers can report the outcomes of integrating the target firms into their operations and assess whether such integration realises the potential value of their investment. Cross border M&A activity is also influenced by firm-level heterogeneity, most importantly, at the aspect of capacities. From a general equilibrium framework, Nocke and Yeaple (2007) predict that either the most or the least productive firms will be involved in M&A. They also indicate that country and industry characteristics will affect the distribution of firm's efficiency through the firm heterogeneity. Generally, firm characteristics will be the main measuring target in this thesis. Moreover, this thesis is developed conceptually in the IB area, but it draws on all of the other areas theoretically and methodologically.

1.3 Research Questions and Objectives

Recent evidence suggests that M&A are not all successful. One basic question presented is that what advantages M&A activities can bring to the involving firms. In other words, will firms benefit from M&A activity through either acquiring other firms or being acquired by other firms? To answer this question, it is necessary to identify the factors which determine the occurrence of M&A before evaluating the performance of M&A. Why would an M&A deal happen and complete finally? Once the determinants of an M&A deal are identified, one can understand what motives underpin M&A activity from their announcement to completion. With acknowledgement of the motives behind M&A, another question is whether the M&A have achieved their objectives.

According to Child et al. (2001), the issues both on pre-M&A implementation and the outcomes of post-M&A implementation should be thoroughly examined in M&A contexts. The relationship between foreign acquisition and firm-level productivity directly relates to other measures of performance such as profitability (Girma, et al., 2006). It is assumed that cross border M&A usually do not change the industry and firm characteristics, at least in the medium term. This enables firm performance to be compared prior to takeovers and after takeovers based on a relatively stable observation. Accounting studies examine the operating performance of the merging firms. This usually consists of a comparison of pre- and post-M&A profitability based on accounting measures to appraise post-M&A performance in industrial economics (Shimizu, et al. 2004). Such measures include: net income, sales, return on assets or equity,

EPS, firm liquidity, profit margins, and so on. Although the empirical evidence on the profitability of takeovers is extensive, the relationship between cross border M&A and firm's profitability is inconclusive. Generally, some studies show a decline in post-acquisition profitability by employing earnings-based measures, while some studies show merger gains by using cash flow performance measures (Ravenscraft and Scherer, 1987b; 1989). By observing firms' pre- and post-M&A profitability level, this research expects to find the link between firm performance and ownership change and to exploit some supporting explanations.

Furthermore, given the influence factors of M&A, it is also interesting to answer what effects they bring to firm performance through the completion of M&A. In light of locations of acquirer firms from the same country or not in the M&A activities, takeovers are categorised to cross border M&A and domestic M&A. Amongst all influence factors of M&A, one may be curious whether the completion of M&A can generate positive synergy in international takeovers with acquiring profitable targets. Meanwhile, it needs to answer whether the completion of M&A can effectively discipline the underperforming managements in international takeovers with acquiring unprofitable targets. From the productive efficiency perspective, it is worthy of assessing the effects of cross border M&A on firm's productivity through differentiating the motives that make acquirers conduct a takeover. One question is whether the technological, managerial or marketing advantages possessed by acquirers can be transferred successfully to targets in the M&A with expansion through advantages. Another question is whether the acquirers have successfully utilised the complementary assets acquired from the targets in the strategic resource seeking M&A.

Given these questions, the empirical study aims to investigate the effects of cross border M&A on post-acquisition performance of both target and acquirer firms over the period from 1st January 2002 to 31st December 2011. Specifically, the study aims to investigate the following aspects that will construct three empirical chapters. Firstly, this study will identify the determinant factors of cross border M&A completions. Secondly, it will examine the impact of cross border M&A on post-M&A firm performance in terms of productivity. When examining productivity effects, this study will further evaluate whether takeovers can improve post-M&A firm's productivity. The dataset will be divided into two subsamples through differentiating the M&A based on whether acquirers have more intangible assets than targets. The productivity-effects research will be conducted by comparing different productivity measures, i.e. total factor productivity (TFP) and labour productivity. Thirdly, this study will also assess the impact of

cross border M&A on post-M&A firm performance in terms of profitability. When assessing profitability effects, this study will further investigate whether international M&A can increase firm's profitability if targets are more profitable before M&A. It will also assess whether international M&A can improve the poor firm's operative position in terms of profitability if targets are less profitable before M&A. In addition, the profitability-effects research will construct dynamic model and static model by incorporating or not the variable of pre-M&A firm's profitability.

1.4 Research Contributions

Firstly, this study exploits the rumoured but abandoned M&A data from a different perspective and incorporates the takeover rumour data into the M&A-likelihood model developed from previous literature. In previous motive analysis on M&A, some research attempts to exploit the takeover target likelihood by examining the characteristics of target firms in M&A activity (e.g. Shleifer and Vishny, 2003; Rossi and Volpin, 2004; Powell and Yawson, 2005). Some research devotes efforts to improve the accuracy of prediction in developing takeover target likelihood models (e.g. Stevens, 1973; Dietrich and Sorensen, 1984). The use of M&A rumour is also exploited in several ways when previous researchers study M&A activity. They primarily employ takeover rumours date as an influential factor in predicting likely targets in M&A activities (Chou et al., 2010; Schausen, 2011). Alternatively, they use takeover rumours in assessing the shareholder wealth (Antweiler and Frank, 2004; Clarkson et al., 2006; Lachapelle, 2011; Wortche and Nguyen, 2011). However, to the author's knowledge, no previous literature has been found to use takeover rumour data in assessing the likelihood of M&A. Thus, this research will employ takeover rumour data in the control group and to construct the dependent variable, which will be the primary contribution of our research.

Being different from the previous research on M&A, the rumoured but uncompleted M&A data is employed to construct the control group in this study. In the previous research, the target likelihood prediction models have extensively applied non-target population as a control group. In sampling the non-target firms, there are often sample selection bias and counterfactual issues which affect the consistency of estimation. Researchers attempt some methods to solve the problems. For example, they sample the control group non-randomly (Stevens, 1973) or randomly (Palepu, 1986; Espahbodi and Espahbodi, 2003) from the non-target population. Considering the shortcoming of previous methods, most research prefers to use propensity score matching (PSM) technique to construct the control group (Girma et al. 2001; Conyon et al.

2002). However, the rumoured but uncompleted M&A data can evade the selection bias and play a role of counterfactual case. It can be directly employed to construct the control group rather than sampling non-target by using a matching approach.

With this advantage of the control group, this research will use the takeover rumour or actual takeover as a dependent variable which is a probability of an M&A being completed or not. This is different from the previous literature that uses probability of a firm being the target of takeovers as a dependent variable. The work of previous researchers is to explore the likelihood of a potential takeover target, while the present study is to explore the likelihood of an M&A event being completed. This research aims to explore the influence factors of cross border M&A being completed. In this means, an M&A likelihood model will be established in an effort to detect the determinants of making rumoured M&A deals completed among the firm level factors. This research will define the likelihood of cross border M&A as the possibility of an international takeover being successfully completed. To our knowledge, no literature has employed this strategy before. This is the first time the status of M&A completions has been used as a dependent variable in the model of M&A likelihood. Therefore, this will provide a new perspective to the literature on likelihood of M&A.

Secondly, the analysis of firm performance in the later empirical chapters will use the status of M&A completions as an influential factor to examine the cross border M&A effect on firm performance. There is an endogeneity problem between firm performance and M&A activity because they influence each other during the takeover implementation (Stiebale, 2013). For instance, a firm's profitability may influence M&A completions. Adversely, whether an M&A is completed or not will influence the involving firm's profitability level. In the motive analysis of cross border M&A, the variable of M&A completions shows a recessive trait because it is a probability value for the completion of a cross border M&A deal. However, in the performance analysis of cross border M&A, the completion of M&A is used as a static variable which indicates a deals status. Such status describes whether a cross border M&A deal is completed or just in a rumour. The status of M&A completions is considered as a state variable rather than a recessive variable, which can represent the status that an M&A deal is completed or not. This can directly reflect the role of M&A activity in the performance study model. The use of this explanatory variable in performance analysis will avoid the potential endogenous problem which may happen, for example, in using the probability parameter of a firm being acquired.

Furthermore, this research will investigate the impacts of cross border M&A on firm

performance by using the determinants of an M&A being completed, while previous research conducts such performance analysis by employing the characteristics of a potential firm which is acquired in M&A (e.g. Schiffbauer et al., 2009; Harris, 2009). The factors which can make an M&A completed can identify a target firm in M&A, while the factors which can locate a potential target firm do not necessarily make an M&A complete due to other potential uncertain conditions such as the regulatory factor. Therefore, the factors that influence M&A completions should have different impacts on the firm performance compared with the characteristics that influence a likely target.

Thirdly, this study will identify the determinants of M&A by selecting the factors from both target firm side and acquirer firm side. Previous researchers focus on employing characteristics of firms to predict likely targets, so these characteristics of target firms were widely examined (e.g., Shleifer and Vishny, 2003; Powell and Yawson, 2005). When detecting the determinants of M&A likelihood, it is not only the characteristics of target firms but also those of acquirer firms that will influence the probability of M&A activity (Espahbodi and Espahbodi, 2003). However, the impact of acquirer firm's information on M&A propensity has been discussed little before to my knowledge. Therefore, in this research, targets and acquirers are clearly marked. Using information from both targets and acquirers will be a contribution in constructing M&A likelihood model. These can then be combined with the industry/market and country oriented variables in the takeover likelihood prediction model.

1.5 Policy Implications

This study was conducted at a time when the financial economies were recovering from global recession caused by the financial crisis in 2007. The M&A activities were influenced significantly by this credit crunch caused by the financial crisis. In the recent past, almost every government dedicated itself to stabilise its financial order by bailing out major banking systems. According to some financial commentators, the banking industry underestimated some risks and neglected the importance of market liquidity, which leads to a credit crunch. Its serious consequences brought profound repercussions to M&A activities.

Some analysts indicate that the population of M&A will reduce because there is less liquidity in the financial system so less funds can finance other companies' M&A. Based on these recent developments, M&A have attracted the unmatched attention of researchers, academics and government regulatory bodies. This empirical study will consider the extent to which firm

liquidity affects the completion of M&A when estimating the performance of M&A. The research findings will have implications for the academics, shareholders, managements, practitioners, and policy makers who could be interested in this research. The detailed discussion will be addressed in the final chapter.

Cross border M&A activity is underpinned by various motives such as synergy, management discipline, acquisition of complementary resources, and so on. This thesis will challenge some conventional understanding for M&A activity. Traditionally, it is believed that target's intangible resource, acquirer's profitability and liquidity are positively related to international M&A activity. However, the finding from this research implies that these factors actually deter the completion of cross border M&A. Further evidence from this thesis shows that the completion of M&A could not bring targets or acquirers high post-acquisition firm performance. For example, neither firm's productivity nor firm's profitability is improved after international takeover completions. In spite of the good intentions, involving firms have not realised the objectives of M&A such as synergistic effect and managerial disciplinary effect. On the contrary, comparing with the completed international M&A, the firms with similar characteristics to those in completed deals improve their operations after they have experienced takeover rumours. Those firms in takeover rumour grow well *per se* in terms of firm's productivity and profitability. Therefore, it may suggest that the takeover rumour can exert the disciplinary function on the improvement of corporate managements. The potential M&A attempt is able to motivate the incumbent management team to prioritise their shareholder's interest and reduce the agent cost without replacing the current management team.

From another aspect, there is still increasingly a large population of cross border M&A all over the world although the completion of M&A could not improve firm performance for targets or acquirers in the short run based on the evidence from this thesis. This is in line with the traditional understanding for public merger policy which considers any merger as an activity to either raise the market concentration or provide barriers to entry, or both. In other words, mergers restrict the competition in the market. This consequence damages social welfare and hence the M&A activities were often boycotted. However, being different from the orthodox definition of competition, Demsetz (1973a, 1973b, and 1982) and Baumol et al (1982) shift the focus of attention and transform the concept of competition from a static measure of concentration to a more dynamic conception which regards competition as a process. They suggest that market power has only a transitory effect and its competitive forces will be

eliminated in the long run. Whilst much attention has also been paid to other factors in shaping forces of competition, such as barriers to entry and barriers to exit. Therefore, there may be potential positive improvement for firm performance in the long term after M&A. This is beyond the range of this project, but it is worthy of investigation in the future research. In order to improve the success rate of cross border M&A, the author proposes policy suggestions to the participants of M&A. The firm's managements should provide the convincing information disclosure on the pre- and post-acquisition appraisal before potential M&A take place. The firm's managements should carry out the effective risk control during the whole implementation process of upcoming M&A activity. These suggestions will facilitate the involving firms to improve their post-M&A performance.

1.6 Organisation of the Thesis

The purpose of this chapter is to provide context and background for the research. In addition to setting out the theoretical context and the aim of the thesis, the chapter presents an overview of research questions, objectives and policy implementations as well as the empirical contributions of this thesis to the literature on M&A study. In order to address the issues raised above, the thesis focuses on the nature of a cross border M&A together with the influence of particular variables on the performance of M&A activity. It is found that the resource-based motives deter the completion of cross border takeovers compared with the efficiency-based motives. The productivity and profitability measures capture internal returns and external returns respectively for target firms and acquirer firms. The further results show that the international takeover suffers from a lower post-acquisition performance in completed deals than that in takeover rumours. This suggests that the international M&A with some obstructive factors may generate a negative impact on firm's performance in the short term if managements choose to ignore obstructions and insist on completing the deal.

The thesis is organised as follows:

Chapter 2 seeks to provide an overview of the factors which drive M&A activity and some potential issues on integration post cross border M&A. This chapter discusses a broad survey of theoretical explanations for motives of M&A activity and extant empirical literature on M&A studies. In this chapter, previous research on M&A is reviewed within the disciplines of finance, management, international business and industrial economics. It draws a number of firm-level, industry-level and country-level factors out of aforementioned motives and reviews their

impacts on international takeovers as well as the consequence of M&A. This chapter will also discuss the limitations of prior studies.

Chapter 3 outlines the methodology for the core analysis of the thesis. The chapter seeks to explain the methodological issues such as the bias in accounting data and sample selection. It presents necessary methodological information used in analysis of the current study. This involves a full understanding of the counterfactual issue, sample selectivity and the correction approaches. This chapter provides a more direct way to address selection issue with using takeover rumour data. It also justifies the use of probit model in exploring the determinants of international M&A.

The subsequent empirical chapters (4, 5 and 6) will use the takeover rumour from a new perspective. Specifically, chapter 4 aims to identify the factors which may affect the completion of cross border M&A. It exploits five firm-level factors which are firm size, profitability, liquidity, financial leverage and intangible resource. The research shows an empirical research on determinants of cross border M&A completions. By being incorporated into the dependent variable, the rumoured M&A data act as a control group to address the selection bias and counterfactual issue. At the same time, this chapter examines the likelihood of M&A rather than that of a potential target.

Furthermore, after identifying the determinants of cross border M&A completions, chapters 5 and 6 investigate the impact of cross border M&A on the firm performance by using the determinants of M&A completions. Chapter 5 conducts the empirical research on impacts of M&A on a firm's productivity from aspects of targets and acquirers. The data sample will be divided into two subgroups in terms of difference between acquirer's and target's pre-M&A intangible assets. With this classification, the effect in the market seeking expansion is exploited through the M&A with high acquirer's intangible assets, while that in the strategic resource seeking expansion is exploited through the deal with high target's intangible assets. The firm performance in terms of productivity is measured by firm's post-acquisition TFP level and labour productivity level.

Chapter 6 presents an empirical research on impacts of M&A on firm's profitability for both targets and acquirers. The data sample is divided into two subgroups according to the target's pre-acquisition profitability. Amongst, the M&A with a target of high profitability and that with a target of low profitability are used to examine the effect of synergy and managerial discipline

hypothesis respectively. The empirical research on the profitability effect of takeover is also conducted in static and dynamic models respectively.

Finally, chapter 7 concludes this thesis. Based on findings from the above three empirical chapters, some implications and suggestions are proposed. This chapter recommends potential areas for the real economy and further research. It is expected that this research will interest managers and policy-makers who can use the research findings to formulate strategic and economic policies.

Chapter Two: Theory and Empirical Literature on M&A

2.1 Introduction

This chapter presents a critical review of previous theories and empirical literature on M&A determinants and performance. This review will highlight a broad consensus achieved and some considerable controversy. In particular, the disagreement between the results from the industrial economics tradition and those from the financial economics tradition will be demonstrated. This review especially relates to the intended areas of this research.

Many studies show a link between the role of M&A and strategic restructuration and resource reallocation. Academic research has developed quite a number of theories trying to explain why firms are involved in M&A activity. These theories argue that firms conduct M&A to achieve firm growth, economic benefit or efficiency gains. Nevertheless, these theoretical developments often give mixed empirical results. According to Tichy (2001), analysis of M&A based on finance theory focuses on stock market reaction to announcement of M&A in order to assess the shareholder wealth. They support the role of M&A in the effectiveness of allocating spare resources via best management. Holding the view of perfect capital markets, financial scholars emphasise on the abnormal reaction of share prices around the announcement of M&A (Fama et al., 1969). They employ 'event studies' which was introduced initially by Fama in 1969. Financial academics examine share price validity in a window of certain time period before and after the event and conclude an optimistic opinion of value-creating in M&A (Jensen and Ruback, 1983). Nevertheless, Mueller (2001) indicates that the negative return will be shown with the extension of the observation window in the long term.

From another aspect, the industrial specialists doubt the role of M&A event on firm performance improvement by examining the data from the balance sheet. The implications of M&A activity for social welfare in the school of industrial economics have been debated exclusively within a public policy domain. The industrial organisation economists utilise '*ex-post* studies' and conclude M&A as a 'disappointing marriage' (Meeks, 1977). After scrutinising the firm economic performance and balance sheets around M&A, they draw a pessimistic conclusion that the acquisitions neither create value nor are profitable for both firms involved.

In order to explain fluctuation of takeovers occurrence, Manne (1965) develops the market for

corporate control which displays a disciplinary mechanism to replace inefficient and ineffective managements. It is argued that M&A can generate value by management displacement and unspecified synergies (e.g. Jensen and Ruback, 1983; Jensen, 1986a). Drawing from a principal-agent issue framework, takeovers are explained as pursuit of managerialist objectives, such as growth. The free cash flow hypothesis of Jensen (1986b) demonstrates that M&A will generally destroy value and enhance principal-agent problems unless the management teams can make good use of free cash flows. With respect to the managerial discretion due to objectively sufficient funds, the hubris hypothesis (Roll, 1986) captures the subjective willingness of acquirer management teams. It suggests that the overoptimistic valuation on takeovers make acquirer management teams participate in M&A activities, which results in poor performance.

The chapter is organised as follow: the next section discusses the motives for M&A which are developed from previous theories. These theories are developed from industrial academics' and financial academics' perspectives. Within the discussion on the motives of M&A, this section also shows how the theories on M&A have evolved briefly and what their divergences are based on. The third section reviews the recent research tendency on M&A and lists some important factors of affecting M&A from the aspects of firm-, industry- and country-levels. This section also outlines some literature on firm post-M&A performance effects. The chapter concludes with a summary of the evidence and presents a short analysis that introduces the specific aims of the current study.

2.2 Theoretical Explanations for Motives of M&A

2.2.1 Mergers and Managerial Theories of the Firm

Analysis of M&A dates back to the classic theory of the firm of Berle and Means (1932), who highlight the corporate governance issues due to the separation of ownership and control of the modern corporation, which is different from the traditional theory of the firm. In their formal analysis of mergers, managers tend to exploit their further managerial interests when they are not shareholders of the companies. By means of M&A activity, non-profit maximising behaviours can create benefits for managers other than the competition in product markets. Based on the framework of Berle and Means, Marris (1963) also introduces a number of alternative managerial theories of the firm with different emphases. The managers are disciplined by shareholders and competitive market forces, but managers can discretionarily

expand their welfare at the expense of the owners. Corporate managers can use profitability to measure whether they have achieved the growth objective. This managerialist approach incorporates M&A into theories of the firm.

Of above these alternative theoretical developments, Marris (1963) explains the motivation of management engaging in M&A, and he also introduces the takeover threat to confine the discretionary behaviours of managers. There is an equilibrium point to balance between managers' own welfare and interests of shareholders. The decrease in the firm's market value implies that managers pursue too much for themselves and that the firm is vulnerable to be acquired. However, it is problematic to directly examine the managerialist theories of the firm (Francis, 1980). For example, it is arbitrary to differentiate between owner-controlled and manager controlled firms (Nyman and Silbertson, 1978). Although there are various limitations for these managerialist theories, the principal-agent theory is developed from these theories (Jensen and Meckling, 1976).

2.2.2 Synergy

The theory of efficiency suggests that mergers will only occur when both parties believe the deal will make enough realisable synergies beneficial to them. Hitt et al. (2001) argue that 'synergies' generated from mergers increase the value of both acquirer and target firms. That is to say, M&A takes place because the integration of the two firm's resources brings increased economic benefit. To achieve a 'friendly' merger, the synergies should have symmetric gains. Neither acquirer nor target is willing to complete the deal if the counterpart obtains a positive gain while it suffers from negative value itself. Hence, according to efficiency theory, a merger deal creates positive value for both acquirer and target (Klein, 2001).

Mueller (1969) makes a contribution to the theory about the efficiency effects of merger activity. Mueller (1969) analyses conglomerate mergers and negates the conventional theory of the firm. If firms merge in unrelated industries, less support is found for the usual synergy and managerial displacement hypotheses, especially when target firms are given certain degree of operation autonomy. According to the agency theory and the work of Porter (1987), the performance of an incumbent management team can be improved through change in their contract of employment rather than replacement of managers. The terms of contracts can be adjusted to satisfy the objectives of shareholders. Mueller develops a managerial growth motive for mergers. The separation between ownership and control brings a direct conflict of interests

between managers and shareholders. Without an effective disciplinary mechanism, managers have considerable discretionary power to abuse the assets they control, especially in mature companies.

With the assumption of profit maximisation, Mueller (1969) concludes synergy is the only plausible motive for conglomerate mergers in a profit-maximising framework. However, the nature of conglomerate mergers makes synergies difficult to be detected. Additionally, Mueller postulates three types of conglomerate synergy. First, conglomerate mergers may introduce better management than horizontal or vertical integration because an acquirer's managers are incompetent in industry or market-specific skills and knowledge in order to improve the performance of targets. Second, the synergy comes from financial aspects such as a lower cost of capital. If the acquirer is larger than the target, it cannot reduce cost of capital to risk-adjusted terms in an efficient markets framework or with an effective arbitrage. If the acquirer owns sufficient free cash flow compared with the target, it can enjoy a low cost of capital. The target firm has to raise funds at a higher return rate in the capital market. If that were so, the acquirer would rather purchase stocks or bonds issued by the target than pay high premiums to acquire control of the target firm. Third, conglomerate mergers can decrease the risk in earnings. According to modem portfolio theory, firms should diversify to reduce risk for the interest of its shareholders (Levy and Sarnat, 1970).

However, Mueller (1969) summarises that the explanations of potential synergies and differences in expectations between the two shareholder groups may be not convincing for conglomerate merger activities in the US. He finds that a conglomerate merger can occur even if the two groups of managements and shareholders expect different future earnings with the same discount rate. Furthermore, the acquirer's managers will still conduct conglomerate merger when they raise capital more easily than their shareholders, e.g. the presence of sufficient free cash flow. Thus, according to Mueller (1969), managers may conduct conglomerate mergers under the motivation of non-profit maximising objectives, e.g. managerial self-interest.

Under the rational mind assumption, the acquirer's managers should pursue the M&A which can gain synergies. In the profit maximising framework, there are decreasing opportunities for synergistic mergers. This is expected to see a decline in merger activity but the opposite is the case. Empirical evidence implies that synergy is the major aim of takeover (see e.g. Berkovitch and Narayanan, 1993; Bruce and Christopher, 2000; Goergen and Renneboog, 2004). Two

types of synergies have been advanced in the literature: operational synergy and financial synergy.

2.2.2.1 Operating Synergy

The assumption of operating synergy is that a firm achieves economies of scale and scope in production. The accomplishment of major determinants ensures firms promptly obtain a dominant position after M&A activities, which provides firms with the potential opportunity to improve their operating income. As noted by Weston et al. (2001), the indivisibility of production factors leads to reduced costs of output and thereby formulates economies of scale and scope. Berkovitch and Narayanan (1993) argue that the gains for both target and acquirer will be positively associated with each other if synergy is the motive of their acquisition. That is because the competition among potential acquirers increases a total gain of the target.

Economies of scale and scope lower the cost of production per unit, and then improve the output and profit (Berger et al., 1999; Lewis and Webb, 2007). The operating synergies result in economies of scale and scope in profitability for the two combining firms. The benefit generated from operating synergy of two firms is greater than the sum of the benefits when each firm runs separately. By modeling the cost frontier, Lewis and Webb (2007) find that the overall economy of scale will change and return of scale becomes higher due to the synergy effect in two firms. This suggests that both target and acquirer may achieve operating gains through the merger activity. One pre-requisition is that firms run under production capacity and have the potential to exploit economies of scale and scope through acquisition, thereby achieving greater profitability.

Chatterjee (1986) distinguishes between ‘operative synergies’ and ‘allocative synergies’. The economies of scale achieve the former synergies, while increased market power and an improved ability to extract consumer surplus result in the latter synergies. Behr and Held (2011) imply that most mergers might be motivated by achieving economies of scale and scope or market power. Devos et al. (2008) indicate that operating synergies are the more significant gain of mergers, although the market power theory is suggested to be a valid merger motive. Above all, M&A may broaden management functions from the managerial economies view.

Another aspect of explanations on M&A is supported by market power hypothesis, which stresses market shares and price-setting power as one dominant motive of takeovers. Feinberg

(1985) argues that the firm can obtain positive and significant private benefits through the 'allocative' synergies because the greater market power enables firms to charge higher prices and earn greater margins. Cefis et al. (2008) stress that many mergers are accompanied by increased profits and decreased sales after announcement. Strong market power to some extent deters the entrance into certain markets from other potential rivals under a dynamic viewpoint (Motta, 2004). Besanko et al. (2006) indicate that firms can obtain a significant premium and so win another long-term gain through increased market power.

2.2.2.2 Financial Synergy

The financial synergy motive means that the two combined firms reduce their cost of capital and improve their debt capacity. It also means that the firm's insolvency and default risk are reduced through mergers. Similar to operating synergy, financial synergy should provide the two combined firms with more profitability and cost efficiency after a merger than if the two firms run on their own. Thus, it can be expected that the two combined firms should experience positive future profit maximisation. Due to the decreases in the cost of capital and insolvency risk based on the financial synergies hypotheses, the firm's size and investment projects are expected to increase, which contributes to both target and acquirer during the combination of two separate cash flows.

Another aspect of financial synergy about M&A comes from a tax motive. M&A is motivated because firms involved will enjoy tax benefits or tax savings. The privilege of tax laws in a certain country will encourage potential acquirers to attempt M&A to gain a tax benefit. In fact, firms can obtain generous tax benefits from these kinds of acquisitions. Auerbach and Reishus (1986) imply that both combined firms use their tax losses and tax credits to reduce their tax liability in the M&A with tax motive. This incentive on tax reduction enables firms to gain financial synergy via a merger (Cook et al., 1992). Shih (1994) finds that some firms conduct conglomerate mergers to avoid tax burdens and such a tax shield can be transferred through mergers. He further indicates that the low earnings can reduce firms' expected future tax burdens in such conglomerate mergers driven by a tax motive.

2.2.3 The Market for Corporate Control

Manne (1965) proposes a capital market discipline hypothesis which can recover profit maximising behaviour and allocating efficiency of free markets. He assumes managers exploit

their discretionary potential rather than profit maximisation in industrial and commercial markets. The rule of a modern company grants its shareholders rights to discipline behaviours of managers, but implementation of discipline is difficult due to the wide dispersion of ownership and the asymmetry of information between the shareholders and managers. There is a high cost for any individual shareholder in monitoring and enforcement as well as organising an effective coalition. Besides, the individual shareholder usually adopts free-riding strategy, so it is almost impossible to discipline managerial discretion by shareholders.

The concept of the market for corporate control provides a profound contribution to economic thinking on M&A. According to Manne (1965), the owners often prefer those managers who can provide the highest value for their assets. Thus, inefficient managers are replaced and managers are forced to maximise the profit. In the theory on corporate value, share prices reflect net present values of a firm's future profits flows. The market for corporate control views the decline in a firm's share price as the signal for management underperformance. In an efficient merger market, corporate control hypothesis suggests that other firms or management teams are always willing to acquire an underperforming firm. They can remove those managers who cannot create synergies in order to promote the performance of its assets (Weston et al., 2004). Jensen (1986a) concludes the market for corporate control brings benefits for shareholders and the whole economy. It allows resources mobilised freely to higher-valued end without limitation.

In M&A, acquirers overtake the right of corporate control from targets. With the assumption of an efficient capital market, Manne (1965) explains M&A as a disciplinary mechanism to enhance economic efficiency. Thus M&A activity can confine harmful managerial discretionary behaviour. Eckbo (1986) concludes that M&A generates significant gains to shareholders of both acquiring and target firms since effective competition in corporate control relieves the agency problem, such as managerial divergence. As a result, when internal corporate governance mechanisms within firms cannot discipline their managers, these poorly performing firms will be raided by hostile takeovers (Palepu, 1986).

Numerous empirical studies have explained the rationale behind the market for corporate control in M&A. However, the necessity for large fluctuations of market discipline has been questioned (Mueller, 1992; Dickerson et al., 1997). There are mixed views on the market for corporate control. On the one hand, the underperforming firms are thoroughly disciplined by the market for corporate control. On the other hand, some researchers argue there is no evidence

to advocate this notion of discipline. De Young (1997) finds that acquirers are averagely more efficient than their target firms no matter whether at pre-merger or post-merger stages in related and unrelated circumstances. The author concludes that inefficient firms will be acquired in efficient markets, which supports the market for corporate control hypothesis. Dickerson et al. (2002) prove the effect of the market for corporate control in disciplining unsuccessful firms in the UK. Jensen (1987) also acknowledges the effect of M&A on replacement of inefficient management, although changes in technology or market conditions also influence M&A activities.

Conversely, Weir and Laing (2003) and Siriopoulos et al. (2006) have not found significant evidence to support the managerial disciplinary effect for the corporate control motive in the UK and Greece respectively. They imply that acquisitions in these countries are usually friendly rather than hostile in the takeovers driven by a disciplinary motive. Ferreira et al. (2005) suggest that incumbent managers of firms tend to raise firms' market share internationally for effective restructuration in the agency cost framework. However, they find no evidence of the market for corporate control disciplines for underperforming firms.

By using a binary logit model methodology, Weir and Laing (2003), Koke (2004), Weir, et al. (2005), Sinha (2006) and Siriopoulos, et al. (2006) focus on different issues about the market for corporate control. Their research shows that change in control, as a disciplinary measure, is related to poor performance in market-based economies. They also show evidence that high ownership concentration makes control change possible, in line with a managerial discipline hypothesis. Particularly, Weir et al. (2005) find that the privatisation of firms is related to high CEO or institutional shareholdings, but is statistically insignificant with regard to the presence of non-executive and independent directors. Sinha (2006) identifies that incumbent management is disciplined by outside management in hostile takeovers.

Apart from the mixed academic evidence, the practices in M&A are sometimes different from the theoretical hypotheses. For example, the frequency of management turnover is not as high as expectation. The process of integration cost a rather long time in many cases (Cosh and Guest, 2001). Furthermore, Capron (1999) claims that many indicators show deteriorated post-acquisition performance, as restructuration of target assets frequently damage its capabilities. Therefore, it is questioned that unprofitable or inefficient firms will be acquired.

2.2.4 Managerial Inefficiency

The managerial efficiency hypothesis concerns the asset management and its efficiency. This hypothesis assumes that inefficient management fails to use a firm's resources in generating output. In this case, the full potential value of the firm's resources has not been exploited. In the empirical study of Rege (1984), lower activity is regarded as a sign of inefficient management. He shows that M&A can enable the firm to be more efficient and profitable for the benefit of the owners. He also doubts the effectiveness of forecasted data in predicting takeover targets compared with historical data.

Building on the property rights literature, Fama (1980) extends the work of Alchian and Demsetz (1972) and Jensen and Meckling (1976) and shows that the operation if primary disciplinary mechanism depends on the efficiency of managerial labour market. Fama argues that economic organisation can explain efficiently the separation of ownership and control through the set of contracts. He starts from the concept of ownership in production factors and security bills, and differentiates the function of management and risk-bearing. The security holders are 'risk bearers of last resort'. Therefore, market disciplines over managers and shareholders should be applied only in the appropriate markets. In the case of managers, the market for managerial labour which runs outside of firms exerts the primary disciplinary mechanism.

Fama (1980) states that when self-interested discretion is not restricted in the managerial labour market, the market for corporate control has to employ takeover as its disciplinary mechanism. Of course, all of these require the pre-requisition of an efficient capital market. It is an important contribution that Fama adjusts the neo-classical theory of the firm to be more relevant to the modern business world. His theory of corporate discipline shows advantage in explaining merger activity from aspects of efficiency and effectiveness of the market for corporate control (Jensen, 1986a). However, Fama's theoretical approach could not explain the reason for periodic failure affecting the managerial labour market.

With the assumption that inefficient management is replaced in takeovers, North (2001) focuses on investigating whether a firm's relatively poor financial performance (i.e. efficiency) is the main reason for it being acquired. He finds that acquirer firms recognise under-management in target firms and attempt takeover to remove and replace inefficient management. The acquisition is believed to overcome inefficiency in the target firms in order to increase value and create potential gains for target firms. Empirical studies usually use the return generated from the assets of the company to measure the managerial efficiency. For example, Palepu

(1986) uses the target's return on equity prior to the acquisition as a measure of management efficiency in order to investigate the impact of inefficiency management on takeover decisions.

2.2.5 Management interest hypotheses

The manager's interest hypotheses also support M&A activity, which involves hubris hypothesis, free cash flow hypothesis and empire-building hypothesis. These theories provide to some extent explanations for failure of performance in M&A (Puranam and Singh, 1999). Generally, there are two categories of arguments for these theories (Dickerson et al., 1997). The first assumes that the acquirer's management initially intends to increase value, but accordingly makes mistakes and losses due to constraint of information. The second presumes self-serving managers only maximise their private value rather than positively improve firm value.

2.2.5.1 The Hubris Hypothesis of Mergers

Within the first category, the theory of managerial hubris (Roll, 1986) implies that managers with good value-increasing intentions may overestimate their abilities to create synergies due to their over-confidence. Jensen and Ruback (1983) review twenty of the US empirical studies and conclude that the market for corporate control can reinforce efficiency by reallocating corporate assets. However, Roll (1986) questions this survey and argues that the efficiency of capital markets necessitates the efficiency-enhancing outcomes of M&A. With a rationality assumption, Roll (1986) studies the identification of a potential target and the value benefits from a takeover. The calculation on value is built on private information held by the acquirer management and the publicly available information. If acquirer managers believe the value of takeover benefits is greater than the current market price, they will precede with the takeover.

Roll's insight emphasises the nature of the bidding process. The valuation of takeover benefits can be predicted wrongly due to the price distribution. In assuming the efficient capital market, Roll claims that an over-valuation on targets makes acquirers conduct M&A which is not efficiency-enhancing. If capital markets are not efficient, it will be possible for acquirers to gain profits due to their exclusive access to private information. Nevertheless, if the capital market is efficient, the acquirer needs to pay a premium which exceeds the potential benefits of the takeover. In other words, the inefficient capital market increases the opportunity of acquirer's valuation error which is detrimental to the putative efficiency of corporate control market.

Roll relies little on the assumption of efficient product markets. The information asymmetry may lead to inefficiency of the managerial labour market, but an appropriate incentive mechanism can compensate for this inefficiency. Holding this argument, there is no question about Roll's assumption of efficient managerial labour markets. Based on Roll's hubris hypothesis, it is found that the market value of acquirer and combined assets from target and acquirer will decrease, while the market value of the target will increase. The hubris theory of Roll (1986) contributes to the financial economics literature on M&A within an efficient markets framework. In the process of constructing his hypothesis, Roll justifies the inconsistent use of assumptions of efficiency in product, labour and capital markets. His inferences explain the value-destroying process of managers' actions even though the managers have a wealth maximising intention.

Empirically speaking, Berkovitch and Narayanan (1993) find strong evidence of hubris in the US takeovers. In addition, Goergen and Renneboog (2004) predict that managerial hubris is faced by one third of the large European takeovers in the 1990s. Malmendier and Tate (2005) indicate that over-confidence improves the chance that managers involve less profitable diversifying mergers. According to Rau and Vermaelen (1998), low book-to-market ratio firms are more likely to attract managerial hubris than high book-to-market ratio firms.

The managerial hubris infers that acquirers pay higher takeover price over and above the target's true economic value. This dramatically increases the chances of overpaying which leads to failure (Malmendier and Tate, 2008). It is apparent that acquirer managers overestimate the value in takeovers due to managerial hubris, which results in being called the winner's curse phenomenon (Roll, 1986). The misevaluation on merger opportunities is usually followed by negative total gains in acquisition if the hubris hypothesis holds**.** Hayward and Hambrick (1997) indicate that acquirers usually pay significantly higher premiums than the value they expect to be created. They also show a significant and positive relationship between management hubris and the size of premium paid.

Berkovitch and Narayanan (1993) and Goergen and Renneboog (2004) identify that managerial hubris makes acquirers achieve no gains from takeover in which errors or poor decisions in evaluating benefits are made by the acquirer management. Mueller and Sirower (2003) argue that the hubris is not the only reason for impairing the wealth of takeovers, but the hubris from managers of diversified firms is more than that of undiversified firms' managements. Thus, poor managerial decisions are gambles where acquirer managers believe that their foresight in

value is more than others.

2.2.5.2 The Free Cash Flow hypothesis of Mergers

Building on the agency cost literature, Jensen (1986b) develops the free cash flow hypothesis of merger activity which mainly discusses the managerial discretion over, and abuse of, free cash flow. It is assumed that there are the different interests between managers and shareholders and insufficient competitive pressures in the product and the managerial labour markets. With these assumptions, managers will utilise discretionarily free cash flows and unused debt capacity. Myers and Majluf (1984) indicate that managers should distribute free cash flows to shareholders. Jensen (1986b) implies that agency problems usually exist when firms hold large amounts of free cash but experience a slow organic growth. In this situation, managers prefer to involve takeovers rather than return free cash to their shareholders. Jensen believes that managers may wish to maintain their fund accessibility unconstrained. He argues that takeovers tend to have a value-destroying effect. This detrimental effect appears obviously, especially in unrelated mergers where it is difficult to achieve synergistic benefits.

Jensen (1986a) firstly presents that underperformed acquisitions do not result from over-confidence but the presence of excess liquidity, or free cash flow (FCF) in the theory of managerial discretion. The excess fund over required investments leads managers to make quick and large-scale strategic decisions without careful analysis compared with their fund-strapped peers. For the free cash flow (FCF) hypothesis, with high levels of liquidity, managers have more managerial discretion to choose poor acquisitions when there are no good ones (Martynova and Renneboog, 2008). Moreover, it is suggested that the other stakeholders in the firm may believe their management and approve acquisition plans on the basis of high past and current cash flows in such situations (Rau and Vermaelen, 1998). Thus, the hypothesis of FCF suggests that the high level of caution in the absence of excess liquidity will lead managers to make better decisions (Harford, 1999).

In the second category, Jensen (2005) points out that a self-interested manager will be more likely to seek for self-serving acquisitions with increasing the degree of their managerial discretion in FCF. Researchers have shown their support for the role of managerial self-interest in M&A. For example, Lewellen et al. (1985) prove that the manager as a large shareholder in the acquiring firm generally generates higher bidder returns. While Harford (1999) shows that the managers with a small stake in the share of the acquiring firm usually produce lower bidder

returns. It is implied that managers will devote more effort to an acquisition due to concern of their own financial interest. Further, both agency problems (Berle and Means, 1932) and managerial theories of the firm (Marris, 1963) argue that managers pursue self-serving acquisitions which lead to value-destruction.

From another aspect, Jensen (1986b) argues that M&A may resolve these agency problems. If the targets which hold sufficient free cash flows are acquired by other firms, acquirers can generate excess benefits for both groups of shareholders with proper use of the funds. This type of takeover will replace the incompetent management in applying free cash flows appropriately. Jensen suggests that corporate debt can be used to solve agency problems associated with free cash flow. The managers have to pay out free cash flows to repay the debt; otherwise firms will go bankrupt (Jensen and Smith, 1985; Smith, 1986). If managers would not like to distribute free cash flow in a dividend, the issue of debt could be a better disciplinary device in forcing managers to pay.

Although the free cash flow hypothesis is developed in an efficient market framework, it does not limit its insights into the empirical testing only on share price reactions to merger announcements. A variety of hypotheses about merger activity are developed to test this theory. For example, this theory suggests that the type of financing M&A will yield different results for shareholders. The takeovers financed by cash and debt usually gains greater benefits than those financed by stock exchange because stock financed acquisitions are often related to growth opportunities and a shortage of free cash flow (Jensen, 1986). Thus, the free cash flow theory allows both industrial and financial economists to mediate their approaches. It explains the positive and negative effects on agency problems related to free cash flow, which contributes to the understanding of merger activity.

2.2.5.3 Empire-building Motive

According to the theory of managerial entrenchment (Shleifer and Vishny, 1989), some investments are made by managers in order to maximise the difficulty of being replaced, which leads to occurrence of unsuccessful mergers. This implies that managers make an effort to entrench themselves by increasing their individual value in the firm rather than maximise the firm's value. Accordingly, entrenching managers will pursue manager-specific projects to protect themselves from being replaced by shareholders. Consequently, the value of shareholders will be damaged because free resources flow to manager-specific assets,

especially when managers are not major shareholders in the firm. Amihud and Lev (1981) empirically indicate that diversifying mergers are chosen to reinforce the stability of managers' earnings in order to strengthen corporate survival and maintain their positions.

Of course, entrenchment mechanism is a way to ensure job security, while it enables managers to obtain more wealth, power, reputation and fame (Black, 1989). Entrenchment theory primarily demonstrates the behaviours of managers' self-defending the interest and positions of their own. The theory of empire-building provides both the motivations and evidence behind these behaviours (Ravenscraft and Scherer, 1987b). The empire-building theory explicitly encourages managers to pay more attention in the growth of their firms rather than profit maximisation (Mueller, 1969). Kanniainen (2000) finds a positive relation between over-investment and managements with a linear compensation scheme. He also derives that the empire-building motivates a low degree of uncertainty such as risk aversion and preference for prudence. Under empire-building theory, managers prefer to measure the firm with a lower discount rate than the average in the market, so they have a large pool of undervalued potential targets (Mueller, 1969). However, it is evidenced that the market shares of manager-chosen targets usually reduce after acquisitions and those targets are often non-related and less attractive than others (Lang et al., 1991; Harford, 1999). Besides, managerial orientated takeover will result in declined share prices of acquirers (Morck et al., 1988).

2.2.6 Diversification Motive

The issue of diversification has been debated as an M&A motive over the years. The empirical literature documents conflicting results on the role of diversification in actually decreasing risk. In most cases of the diversification hypothesis, shareholders show their ability more in risk control than managers by restructuring portfolio efficiently to diversify risk. It is advocated that firms can achieve profit maximisation and simultaneous risk minimisation through diversification. Diversification considerations suggest that investment to profitable targets in different markets or industries will increase post-acquisitions profits or lead to expansion in new fields. The management of acquirer claims that the diversification can ensure the robust returns and lower the risk, which increases the potential value for the firms (Villalonga, 2004; Mukherjee et al., 2004).

According to the portfolio theory in finance, optimal diversification is achieved through a diversified range of stocks. Therefore, firms attempt to diversify the risk through acquiring

other firms. There is a positive relationship between undiversified firm and high risk premium in investment, thus the bad risky consequence tends to be weakened by diversification. Comparing with undiversified firms, a significantly lower cost of debt and more positive premium are found in diversified firms within the same industry (Aivazian and Qiu, 2006). Aivazian and Qiu (2006) also show that the default risk can be diversified by creditors through hedging uncertain future cash flows. Geographic diversification constitutes another aspect of diversification strategies in international M&A activity. A large literature seeks to examine the origin of country in cross border M&A transactions and the firm performance in these transactions. According to Bodnar et al. (2003), geographic diversification offers acquiring firms an effective risk reduction which is different from the aspect of financial diversification. Geographic diversification enlarges a firm's access to multimarket exploitation. For example, the US attracts more FDI because the international diversification can exploit the economy of scale within its domestic markets so as to obtain cost deduction and superior returns compared with other developed countries. By contrast, the internationalisation from Asian firms aims to learn from foreign customers and rivals (Yang and Driffield, 2012).

There is a body of research which suggests that MNEs are more likely to experience an adverse performance effect before they can obtain positive returns given that the downside of overseas expansion such as high organisational costs and complexity in integration often exceed the benefits of diversification in the initial stage (Qian, 1997; Ruigrok and Wagner 2003). Even so, some countries with a small market capacity give firms pressure to expand abroad quickly because their domestic markets are easily to be saturated (Autio et al., 2002; Moen and Servais, 2002). However, along with the environmental uncertainty and liabilities of foreignness, a rapid move may lead to a fall in a firm's performance in the early stage of overseas expansion. Furthermore, it is argued that the diversification motive has lost importance since takeovers in related industries (product extension) and related markets (market extension) have increasingly shown improved performance compared with other ones (Tichy, 2001).

2.2.7 Motives Based on Theories of International Business

According to Markusen (1995), two alternative explanations have been summarised traditionally for different types of M&A. Firstly, horizontal M&A is directly driven by a market-seeking motive which attempts to enhance existing markets or exploit new ones. In horizontal M&A, relocation of production within overseas markets is originated from market demands. Multinational corporations involve horizontal international integrations across

developed economies in the small home markets with supply surplus and in the adequate host markets with excess demand. Acquiring foreign plants may duplicate production capacity in overseas markets which serves foreign customers at low trade costs and makes firms more competitive abroad. It is concluded that the firm's decisions on horizontal investment are affected by foreign market size, trade barriers and transport costs (Harris, 2009).

Secondly, a vertical M&A model is driven by the motive of efficiency-seeking which integrates either upstream or downstream production stages to optimise firms' resource allocation. Under vertical integration through M&A, multinational corporations reallocate its certain production stages to low cost markets abroad so as to reduce its overall costs of productions. They may provide foreign customers with different goods/service from home countries. When there is heterogeneous factor advantage in different countries, firms can benefit from their production specialisation with respect to these advantages. According to traditional trade theory, the use of scarce production factors may generate high return in some countries, which attracts vertical integration. In order to reinforce competitiveness, there is a tendency for firms to seek to vertically enter labour-intensive production in less developed countries, while capital-intensive production in more developed countries (Bevan and Estrin, 2004).

2.2.8 Resource Based Transfer Motive

M&A is motivated by the resource-based transfer from the target firm to the acquirer firm. From a resource-based view, Dunning (2000) develops resource-seeking motives and strategic asset-seeking motives for M&A, both of which aim to reduce production costs and explore material resources especially for specific intangible assets (Barba-Navaretti and Venables, 2004). The aim of the acquirer firm is to make good use of the resources acquired from the target firm and generate more decent results from the obtained resources. It is noted that highly skilled human capital is one of the most needful strategic resources for acquirers in knowledge-intensive and innovation-driven industries (Ranft and Lord, 2000). Another study indicates that a key objective of acquisition is to seek knowledge-based resources. The knowledge can be transferred successfully only when the target's technologies and capabilities are properly utilised in the acquirer firm (Ranft and Lord, 2002). Ranft and Lord (2002) argue that the complex process of M&A implementation makes transfer of technologies and capabilities difficult and time consuming. They explain that the managements in acquirer and target hold different philosophies due to distinct cultural backgrounds and it takes time to build up consensus between managements and digest the acquired technologies and capabilities.

Capron (1999) and Capron et al. (2001) demonstrate that the performance of M&A is influenced by asset divestiture and resource redevelopment and the extent of asset divestiture in targets being affected by resource redevelopment is higher than that in acquirers. Karim and Mitchell (2000) suggest that both targets and acquirers are more likely to change their business resources following M&A comparing with non-acquired firms in the US. This substantial change brings combined firms with averagely higher post-acquisition efficiency than non-acquired firms due to big heterogeneity in business restructuration. Karim and Mitchell continue that non-acquired firms experience less resource redevelopment than acquirer firms because acquirers can realise resource deepening through adapt acquired resources to maximise their existing potentials.

2.2.9 Reaction Mechanism Hypothesis

The last aspect of explanations is supported by acquisitions as a reaction to changes in the environment, which includes disturbances from new technologies or deregulations (disturbance hypothesis) and competitor policy (defensive acquisitions).

The disturbance hypothesis has been exploited in very early stages of M&A research. Gort (1969) explains that the divergence of evaluation on the 'true' value of assets between the acquirer management and the target management will influence M&A activity among industries and over time. The shocks to the financial system and in the real economy bring the economy with disturbances. In particular, the uncertainty from changes in product process and technology causes greater variance in the valuations for agents and corporate management teams. Gort (1969) also postulates high barriers of entry result in a big variance in valuations and increased merger activity. The disturbance hypothesis has also been developed to show that M&A activity could be influenced by a new production technology, a new form of governance, a restrictive merger policy and deregulation. Some of them directly influence the intention of acquisition, while some do so indirectly (Mitchell and Mulherin, 1996). Bockem (2001) indicates that a certain event within one firm can trigger a series of takeovers or even a merger wave in an economy of firms with different marginal costs.

As for the defensive acquisitions, it is acceptable for the unprofitable deals. Fridolfsson and Stennek (1999) present the pre-emptive merger hypothesis which suggests the larger the loss of acquisitions are, the more successful those deals are. One motive states that a defensive transaction is implemented to protect the firm itself from being acquired by another firm or a raider (Greer, 1986). Another motive is explained by Rasmusen (1988) to be a reaction against

an aggressive competitor. Dickerson et al. (1997) indicate that if the survival of an acquisition is under threat, its goal of increasing profits has to surrender to the second place. No matter whether a firm conducts an offensive acquisition or a defensive one, its rivals have to do the same as well to retain a competitive position. The latter acquisitions are definitely defensive. Rajan et al. (2000) argue that those defensive takeovers are behaviours of bandwagon.

2.3 Research Issues Relevant to Cross Border M&A

Firms can use cross border M&A to enter new markets and expand their current goods. More specifically, Martin et al. (1998) indicate that suppliers often acquire the related international buyers to resist their relationships with local suppliers, which enhances the competitive advantage of the acquiring suppliers over their rivals. Additionally, cross border M&A enables acquirers to access the new knowledge and to obtain new capabilities. It is argued that technological capabilities are transferable between borders, but brand and marketing are distinct among markets (Anand and Delios, 2002). During the process of cross border M&A, choosing a potential target in the host country will be the first task for acquirers. After finishing the transaction, integration between two involving firms and value realisation of their investment will be the task for the next stage. Transaction cost economics (TCE) and ownership location internalisation (OLI) provide frameworks from economic perspectives for cross border M&A (Dunning, 1993). Moreover, the value of international expansion is also investigated from the resource (RBV) and organisation learning perspectives (Barkema and Vermeulen, 1998; Madhok, 1997; Vermeulen and Barkema, 2001).

2.3.1 Influence Factors on Cross Border M&A

When a firm implements a cross border M&A, a number of factors should be taken into consideration. Previous research has identified some factors from various aforementioned motives of M&A, which involves country level, industry level and firm level. Madhok (1997) indicates that previous research focuses on the influence of national and industrial level factors under the TCE/OLI framework. The findings at national and industrial levels relevant to advantages of international expansion have shown some consensus. Factors at national and industrial level such as high or low market growth (Brouthers and Brouthers, 2000; Hennart and Reddy, 1997), low cultural distance between home and host countries, and low uncertainty avoidance in the home country (Kogut and Singh, 1988) have been investigated to show high likelihood of cross border M&A. The findings at firm level have identified a large range of

factors. It is found that some firm-level factors, such as multinationality (Harzing, 2002), investment size (Brouthers and Brouthers, 2000; Kogut and Singh, 1988), intangible assets (Delios and Beamish, 1999), local experience (Barkema and Vermeulen, 1998), and the degree of product diversification (Wilson, 1980; Brouthers and Brouthers, 2000), have a positive relationship with cross border M&A. Nevertheless, these factors suffer from the drawbacks which may lead to unsuccessful takeovers.

2.3.1.1 Firm- and Industry-level Factors Affecting Cross Border M&A

Madhok (1997) implies that recent research explicitly emphasises firm resources from the value side. From a resource based perspective, Anand and Delios (2002) distinguish between technological capabilities and advertising intensive capabilities. The difference of resource types depends whether a firm adopts capability-seeking or capability-exploiting acquisitions. For example, when transferring brands to overseas markets, an entry barrier such as high level of advertising intensity will restrict the investment of firms in the host countries. As such, they argue that firms often choose the acquisition of existing brands in target markets. Another example, Hennart and Park (1993) indicate that investors will acquire an existing firm in a target market with high growth rate, so that they can penetrate the target market quickly to avoid losing the potential profit opportunity.

Furthermore, it is often reported that the relative size of the investment is a determinant of acquisitions, but it is necessary to investigate the influence of total value of investment on acquisitions. Brouthers and Brouthers (2000) find a positive relation between cross border M&A and large firm size, while Hennart and Reddy (1997) identify the opposite due to the difficulty of integration between large firms. Erramilli and D'Souza (1993) show that large multinational enterprises tend to expand their investments in small- and medium-sized firms (SMEs). Weitzel and McCarthy (2009) find that M&A activities provide SMEs with an external growth base and takeovers of SMEs are more flexible. Due to the limitation of capital and market abilities, SMEs are often the targets in the cross border M&A activities. Nevertheless, Cho and Padmanahan (1995) do not find the association between investment size and acquisitions.

Shaver (1998) argues that the resource differences at the firm level are often neglected by researchers. For example, some research investigates the impact of acquiring firm's proprietary intangible assets and their transferability on acquisitions. Brouthers and Brouthers (2000)

identify that adopting a form of non-equity based corporation will share some protective information with local partners, which could cultivate new competitors outside that specific local market. Thus, firms with a high degree of technological capabilities prefer to choose an acquisition to protect their specific competences from potential foreign rivals (Brouthers, 2002; Pan and Tse, 2000). When a firm chooses cross border M&A as a diversification strategy, it will desire complementary resources. Wilson (1980) implies that the existence of target firms with complementary resources influences the likelihood of cross border M&A. Accordingly, Delios and Beamish (1999) suggest that the possibility of cross border M&A is high when intangible assets are mainly acquiring resources and the targets have high R&D and advertising intensity.

However, although most investing firms are interested in intangible and knowledge-based resources, it is extremely difficult for investors to identify and manage those intangible assets. Based on the framework of TCE and RBV, it is very difficult to transfer this kind of technology to a foreign location. For example, it is expensive and potentially unsuccessful in training the acquired staff. Therefore, Brouthers and Brouthers (2000) indicate that the competitive advantage based on a complex technology will reduce the likelihood of cross border M&A. Hennart and Park (1993) also stress that acquisitions cannot enable firms to possess strong technological advantage in Japan. Few studies analyse this kind of advantage possession from the firm level.

Apart from the difficulty in technology transfer, it is also necessary to consider the qualities of resources and their complementarities to the firms' current resource portfolio, as well as their degree of embeddedness in the targeted organisation during M&A (Shimizu et al., 2004). For example, according to Hennart and Reddy (1997), sometimes only a part of target assets is the complementary resource desired by acquirers. The investing firms may wish to acquire only this complementary part of assets. However, the organisational form of target may determine the ability of detaching the complementary assets from the others. Thus, when the complementary resources are located within certain division of target firms, the investing firm can obtain interested assets only through acquiring the specific division. While, when the complementary resources are embedded deeply across the whole organisation, this may reduce the possibility of acquiring the whole target in considerations of high transaction costs.

Other factors affecting cross border M&A includes the extent of prior experience of the investing firm, and the product and market diversity of investing firms. From an organisational

learning perspective, Huber (1991) indicates that the experience factor is important, since the experience from various circumstances provides firms with a more extensive knowledge foundation, stronger technological competencies and more inventive abilities. Besides, Vermeulen and Barkema (2001) advocate that firms could operate cross border M&A to reduce organisational inertia in expanding the knowledge base. However, Hitt et al. (1991) imply that firms' capability of innovation might be impaired by intensive acquisitions. In addition, reduced number of competitors and clients due to M&A reduces firms' chances to learn from different events. Empirically, Hennart and Park (1993) and Cho and Padmanahan (1995) do not find that firm experience is related to acquisitions, while Brouthers and Brouthers (2000) identify strong support that high experience level will restrict the likelihood of acquisitions. Thus, it is important to pursue a balance between acquisitive and internal growth of capabilities (Levinthal and March, 1993).

From another aspect, firms can benefit from the operational variety of national markets and product markets. However, multinational diversification has been found to decrease the likelihood of cross border M&A (Barkema and Vermeulen, 1998). Whereas, it is found that the same factor does not influence the likelihood of cross border M&A (Kogut and Singh, 1988). In fact, learning is beneficial to both multinational operations and multiproduct marketing. Nevertheless, excessive product lines could impair information flow and knowledge interaction within the whole organisation. As such, the extent of organisational learning will reduce with increasing the level of product diversification.

2.3.1.2 Country-level Factors Affecting Cross Border M&A

The cultural issue has been examined in the literature of cross border M&A. the majority of academics consider the ability of resources integration, particularly human resources. A high level of cultural distance is regarded as the main obstacle of successful integration (Brouthers and Brouthers, 2000; Hennart and Reddy, 1997; Kogut and Singh, 1988). Investors will apply different strategic advantages according to various locations. For instance, based on TCE and institutional theory, Hennart and Reddy (1997) imply that the higher the cultural distance is, the less likely the investor will prefer an acquisition. It is explained by the high managerial cost of integrating employees stemmed from cultural distances (Child et al., 2001), or limited to the foreign acquirer's governance activities in the local targets (Kang and Kim, 2010). However, with the same theoretical framework, Brouthers and Brouthers (2000) present the opposite argument that acquisitions make firms more legitimate in the host country when large cultural

distance exists.

At the country level, it is important for foreign entrants to have a legitimacy which refers to obtaining acceptance from local customers and institutions. The rules of game such as laws and regulations in the host country are established by local institutions (Davis et al., 2000). Entry to a certain target country is sometimes obstructed by the institution structure. The legal restriction on ownership of outsiders is often used as a governmental protection for local firms. According to Brouthers (2002), the markets with high legal restrictions and high level of investment risk tend to constrain the occurrence of acquisitions. Due to such constraints, institutional theory suggests that invested institutional background may alter the firm's ability of enhancing foreign capability (Caves, 1996). Thus, Wilson (1980) indicates that acquisition of existing local firms provides a better way to cope with the strange environment for the firms without much foreign experience.

Based on institutional theory, Davis et al. (2000) identify that both internal pressure from the parent firm and external pressure from the host country influence firms' foreign expansion. When the institutional norms of the parent firms mainly affect the subsidiaries, the internal system such as homogeneity of organisational practices and structures will prompt the likelihood of acquisitions. Against this, the environmental factors of the host country retard the likelihood of acquisitions. Acquisitions will encounter the difficulty of adaptation of investors in the local environment, especially in the countries with strong regulations, but Davis et al. (2000) find that the internal impact is greater than the external one.

2.3.2 Research Issues on Integration after Cross Border M&A

According to Child et al. (2001), not only should the issues on pre-M&A implementation but also the processes and outcomes of post-M&A implementation should be well examined in international contexts. The large scale of previous literature on acquisition strategy investigates the pre-acquisition and post-acquisition performance of the target and acquiring firms (e.g. Singh and Montgomery, 1987; Lubatkin, 1987; Seth et al., 2002). Much of them regard productivity and profitability as closely related. However, Grifell-Tatje and Lovell (1999) differentiate between measures of productivity and profitability. This distinction also offers a number of contexts related to this research. According to Girma et al. (2006), productivity is considered as the internal returns, which means that the increase in productivity will increase potential resources available to both the internal stakeholders (ie. employees and management)

and the external stakeholders (in particular shareholders and loan creditors). Contrary to this, profitability is considered as the external returns which can be obtained by external shareholders. The profits can be paid out as dividends or retained for reinvestment in order to create more corporate value.

Existing empirical evidence on the causal link between foreign M&A and a firm's productivity is inconclusive. Some research reports positive impact of foreign acquisition on the acquired firm's post-takeover productivity (McGuckin and Nguyen, 2001, for the US evidence; Conyon et al., 2002, for the UK evidence; Piscitello and Rabbiosi, 2005, for Italian evidence; Moden, 1998, for Swedish evidence; Arnold and Javorcik, 2005, for Indonesian evidence). The above studies neglect sample selection issues surrounding the link between the pre-acquisition characteristics of the firm which impact on post-acquisition performance. Based on the propensity score matching technique with a difference in difference estimator, Karpaty (2007) and Fukao et al. (2005; 2006) find positive evidence for the acquired Swedish firms and Japanese manufacturing firms respectively.

In addition, many studies argue that such a positive productivity impact of foreign acquisition reported is affected by various firm- and/or industry-level factors such as pre-acquisition productivity level (Girma, 2005; Girma et al. 2007), size (Bellak et al., 2006), nationality of ownership (Bellak et al., 2006), and domestic competition (Girma et al., 2006). For example, Piscitello and Rabbiosi (2005) report a more significant productivity improvement in smaller firms. Additionally, Girma et al. (2006) indicate that the high potential productivity gains are more likely to be achieved in the more competitive industry where international M&A take place. Furthermore, Girma (2005) and Girma et al. (2007) find a positive relationship between the pre-acquisition productivity level and efficiency gains.

However, the negative post-takeover effects could result from some factors relating to information asymmetry during foreign operations, resource shortage due to coordination over distance, lack of political influence and knowledge networks, difficulty in organisational integration, and so on. Thus, some research finds very limited impact of foreign acquisition on the acquired firm (e.g. Salis, 2008, for Slovenian manufacturing sector; Bellak et al., 2006, for Austrian firms). Meanwhile, various other research also reports negative impacts of foreign takeovers on the productivity of acquired firm following M&A. Harris and Robinson (2002) indicates that foreign acquisitions make firm's productivity level slightly decline after takeover in the UK manufacturing sector. Gioia and Thomsen (2002) also find a similar negative impact

of foreign takeovers on the performance of acquired firms with using Danish firm data.

After discussing the internal performance, we further explore the impact of profitability, which reflects the ability of firms to lever their specific advantage into final markets. Previous literature has examined the success of M&A from several perspectives. They include the perspective of the target's or acquirer's shareholders, the combined shareholder wealth effect, and a wider range of stakeholders such as bondholders, managers, employees, and consumers. According to the survey of Martynova and Renneboog (2008), the shareholder wealth is usually the primary objective of finance theory. The event study approach is applied to assess the short-term and long-term shareholder wealth effects of M&A. The approach assumes the new information from an M&A announcement will be reflected in the share prices; it attempts to investigate the difference between the realised returns and the expected returns after M&A, which is call an abnormal return. The abnormal return studies are listed in panel A of table 2.1. From table 2.1, these event studies show mixed abnormal returns after takeovers. However, the event study on share price movement is criticised from several aspects. First, the effect of takeover can be mingled with many other changes in strategic and operational decisions or the financial policy in the long term. Some long-term shareholder wealth effects may not results from M&A. Second, the approach requires that the financial market is efficient, but the short-term and long-term shareholder wealth effects of M&A are conflicting with this assumption. The efficient financial market assumes the new information about takeover should be reflected in short-term returns rather than long-term returns. This implies that either short-term returns or long-term returns should be identified based on the assumption of financial market efficiency.

Apart from event study on abnormal returns, some studies evaluate the operating performance of M&A by comparing pre- and post-acquisition accounting measures. These measures comprise net income, sales, number of employees, return on assets or equity, EPS, leverage, firm liquidity, profit margins, and so on. Many of these measures are used to assess the firm's profitability, particularly in the examination of operating gains of takeovers by accounting studies. Accounting studies examine the combined operating gains of takeovers. Some profitability studies in the literature report a positive impact on *ex-post* profitability due to international takeovers (Cosh et al., 1980; Healy et al., 1992; Switzer, 1996; Lipsey and Feliciano, 2002; Carline et al., 2002; Gugler et al., 2003; Bellak et al., 2006; Chari et al., 2009), while other literature reports negative profitability after M&A (Singh, 1971; Herman and Lowenstein, 1987; Ravenscraft and Scherer, 1989; Dickerson et al., 1997). Generally, studies

report a decline in post-acquisition profitability on examining earnings-based measures, while studies demonstrate firms can achieve gains in foreign takeovers on examining cash flow performance measures. These studies are shown in panel B of table 2.1.

Table 2.1 The lists of previous research on M&A performance

Panel A Shareholder wealth effect around M&A announcements					
Author (Year), Sample country	Sample period	Event window	Sample size	Abnormal Returns	
Sudarsanam and Mahate (2003), UK	1983-1995	(-1, +1D)	519	acquirer↓	
Bradley and Sundaram (2004), US	1990-2000	(-2, +2D)	12476	acquirer↑	
Moeller et al. (2005), US	1980-2001	(-1, +1D)	1967	acquirer↑	
Ang and Cheng (2006), US	1984-2001	(-1D, close)	848	target↑; acquirer↓	
Martynova and Renneboog (2006), Europe	1993-2001	(-5, +5D)	1659	target↑; acquirer↑	
Sudarsanam and Mahate (2003), UK	1983-1995	(+2, +36M)	519	acquirer↓	
Moeller et al. (2004), US	1981-2001	(0, +36M)	12023	acquirer↑	
Bradley and Sundaram (2004), US	1990-2000	(+1, +24M)	12476	acquirer↓	
Croci (2007), West Europe	1990-2001	(0, +12M)	83	acquirer↓	
Panel B Post-acquisition operating performance					
Author (Year), Sample country	Sample period	Event window	Sample size	Performance measure	Results
Meeks (1977), UK	1964-1972	(0, +5Y)	161	EBIT	acquirer↓
Mueller (1980), US	1962-1972	(0, +3Y)	247	ROE, ROA	acquirer↓
Clark and Ofek (1994), US	1981-1988	(0, +3Y)	25	EBIT	acquirer↓
Dickerson et al. (1997), US	1948-1977	(0, +5Y)	2914	ROA	acquirer↓
Lee and Caves (1998), US	1980-1990	(+2, +5Y)	125	ROS	acquirer↓
Martynova et al. (2007), Europe	1997-2001	(0, +3Y)	155	EBIT	acquirer =
Cosh et al. (1980), UK	1967-1969	(0, +5Y)	225	Net income	acquirer↑
Healy et al. (1992), US	1979-1984	(0, +5Y)	50	CF	acquirer↑
Powell and Stark (2005), UK	1985-1993	(0, +3Y)	na	CF	acquirer↑
Bellak et al. (2006), Austria	1994-2002	(-1, +5Y)	na	Profit margin	acquirer↑
Chari et al. (2009), US	1980-2007	(0, +5Y)	na	ROA	target↑

Result: "↓", "↑", "=" - performance measure decreases, increases, and is not significant respectively.

Event window: 0 - the day or year of M&A announcement; (0, +nY) – The period of n years from the announcement; Close – The day of acquisition completion; (0, +nD) – The period of n days from the announcement; (0, +nM) – The period of n Months from the announcement.

Ravenscraft and Scherer (1987, 1989) indicate that the different benchmarks for both earnings-based measures and cash flow measure result in these conflicting conclusions. With investigating the moderate effect of market power, Mueller (1985) argues that the profit decreases due to a decline in the market share of combined firm, while Gugler et al. (2003) show that the improved market power is responsible for the profit improvement. It is noted that post-merger operating performance studies suffer from measurement errors due to the various statistical problems, such as manipulation by managements of firms or different accounting standards across countries. Thus this may lead to difficultly in comparing the conclusions across countries and over time. Some accounting distortions may disturb the result of operating

performance studies.

Some research on *ex-post* M&A are concentrated on human resource issues which involves the HR programme, personnel development, and shifts in communication and remuneration schemes. To some extent, the change in workforce due to M&A will influence the post-acquisition firm performance. For example, Lehto and Böckerman (2008) indicate that the cross border M&A results in downsizing in manufacturing employment and changes in ownership. The workforce restructure proposed by the acquiring firm will produce significantly immediate negative effects after acquisition, but the subsequent dynamic impacts on the target firm's employment become positive with the enhancement of management efficiency during the post-M&A long-term period (Yamada and Taguchi, 2010). It is capital deepening rather than TFP changes that improve the labour productivity so as to bring good performance after cross border M&A (Schiffbauer, et al. 2009). Due to the difficulties of 'double-layered acculturation' in the cross border M&A, Barkema et al. (1996) present the necessity of more research on post-acquisition integration. The national cultural facet has attracted much attention, while more focus should be guided to the facet of corporate cultural differences.

The early theoretical literature on foreign direct investment, known as the Ownership-Location-Internalization (OLI) framework (Dunning, 1977), has identified three characteristics of multinational firms to explain their advantages in better performance compared with domestic-owned firms. These characteristics are: (i) large endowments of intangible assets that compensate for the lack of local knowledge (e.g. markets, consumer preferences and business practices), to compete with domestic firms; (ii) location advantages that originate from a foreign location rather than exporting; and (iii) advantages from internalising technology rather than licensing it to foreign producers. These elements have been formalised in seminal papers by Markusen (1995, 2002), Helpman (1984, 1985), and Markusen and Venables (1998). More recently, comparing fixed costs of exporting and undertaking foreign direct investment in equilibrium, Helpman et al. (2004) order heterogeneous firms in terms of productivity as follows: the least productive exit, the more productive firms serve only the domestic market, the next more productive serve the domestic market and export, and the most productive firms serve the domestic market and undertake foreign direct investment. Accordingly, it follows that multinationals are the most productive firms in their origin countries.

The importance of firms' active engagement in the formation of integration teams is widely acknowledged. An effective integration team for cross border M&A should involve planning,

coordination and implementation during the integration process (Inkpen et al., 2000). Haspeslagh and Jemison (1991) imply that the integration leaders have a better insight of the personnel issues and the operation processes within teams. Shane (1995) indicates that leaders' competencies affect the qualities of organisational innovation. However, few papers contribute to the theoretical and empirical research on the integration team and their leadership, and most of them are for practitioners (Ashkenas and Francis, 2000; Ashkenas et al., 1998).

Very and Schweiger (2001) insist firms should learn from their prior experiences if they have made multiple cross border M&A deals. These experiences could be beneficial to the success of acquisitions (Hitt et al., 1998). Thus, it is worth to study the process of learning and applying experience from prior practices. Considering the factor of absorptive capacity, Hayward (2002) indicates that the knowledge absorption relies on an adequately similar knowledge base. He finds that significant difference between the prior and current acquisitions make prior knowledge useless for the specific circumstance. Alternatively, the current acquisition with high similarity to previous acquisitions may appreciate the prior knowledge, but little new knowledge could be learned for application in future acquisitions. Whereas, according to the finding of under-performance in the second acquisition, Finkelstein and Haleblian (2002) argue that the prior experience often has a misleading impact. In order to enable learning from acquisition experience be the firm's competitive advantage, a more systematic approach in learning mechanisms requires to be introduced for cross border M&A (Ashkenas et al., 1998).

It is also important to analyse the consequences of cross border M&A failures. The extant literature stresses that many cross border M&A failures such as closure and divestiture result from the overpayment of premium or inevitable problems in post-M&A integration (Child et al., 2001; Hitt et al., 2001). Hayward (2002) argues that firms have studied small mistakes to reduce the payment size of excessive premiums, but there is no literature to investigate the relatively large failed cases such as divestitures and liquidation of cross border M&A. Moreover, Shimizu and Hitt (2005) suggest that the managements may be replaced due to their failure in investments. Although the mistakes and failures are not a pleasant topic for the managers who made the poor investments, they or successive managers should seize the opportunity to learn the lesson from the failures. If there is no rational investigation to unpack the prior failed cases, the management may not dare to touch future potential M&A with worrying about the risk of failures (Shimizu, 1999). Therefore, this research will also investigate post-acquisition issues because of the high international risk in cross border M&A.

2.4 Summary and Conclusion

This chapter was organised to critically review the existing literature in the area of M&A. The in-depth empirical literature had also reviewed that despite prior research using different approaches, a comparative analysis revealed that their findings are different due to their different standing positions and focus points. In the efficient market, the market for corporate control removes the confines on the mobility of resource factors and allows them to flow freely to better utility, which benefits the owners of firms and the whole economy. In general, with the effective disciplinary function, M&A are considered as value-increasing events by financial economists, although considerable inconsistent evidence exists in the efficient markets framework from which financial economists proceed (Dutz, 1989; Jensen, 1987). However, industrial economists are inclined to provide the critical empirical evidence (Mueller, 1989; Caves, 1989).

The divergence between these two traditional economists lies in their respective starting points and the issues with which they are concerned. The industrial economists start from market concentrations, and they prove the presence of market transaction costs in the restructuration of large corporate agglomerates. They are concerned with issues about improving public interest and social welfare and correction of market failure (Caves, 1989). Nevertheless, the financial economists start from the forecast of stock market efficiency. They focus on the return based on share-price movement and they are concerned with the private gains (e.g. Jensen and Ruback, 1983; Jensen, 1986a; Bradley and Jarrell, 1988; Jarrell et al., 1988). However, it is difficult to keep the assumption of efficient markets, especially when the economy of scale is achieved due to mergers (Fama, 1991). Moreover, industrial economists are attempting the method used by financial economists. For instance, Duso et al. (2010) use event study to assess the anti-competitive effect of mergers.

The motives of takeovers are derived from relevant theories on M&A. The influence factors are identified to show their impacts on M&A. However, previous studies have not yet been able to document consistent results concerning these factors, especially in their different research approaches and perspectives on predicting M&A. Therefore, this research will continue exploring the determinants of M&A from a different perspective. This will be demonstrated in a later chapter. In order to reconcile the different strands of empirical evidence, it is worthwhile to propose the question whether cross border M&A improve performance in terms of productive efficiency and profitability. Thus, the empirical research on determinants of cross border M&A

and *ex-post* studies of post-acquisition performance will form the substantive empirical part of the current project. It will attempt to provide a direct test about the impact of takeovers on the productive efficiency and profitability of corporate assets. Before starting the formal studies of this project, it is necessary to introduce the relevant methodology and approaches in the next chapter.

Chapter Three: Research Methodology

3.1 Introduction

This chapter will review critically the methodological approaches adopted in the empirical research literature concerned with M&A. The aim of this chapter is to provide an appropriate starting point for the empirical analysis. Given the theoretical approaches to M&A outlined in chapter 2, it is perhaps not surprising that the methodological approaches to explaining and examining the outcomes of M&A are equally broad.

From the review of the voluminous empirical literature in the second chapter, the interpretations of empirical results still result in much debate and controversy in the literature (Bradley, 1987; Mueller, 1989). These mixed results on outcomes of M&A are, to some extent, produced by the different research methodologies such as event studies and *ex-post* M&A studies. Although both methods occupy most of the recent empirical literature on the effect of M&A, neither of them has shown convincing and consistent results. Researchers have attempted to reconcile the contradictions and inconsistencies in the empirical literature by utilising reconciliation of the two methodological approaches (Bradley, 1987; Caves, 1989; Higson, 1991; Healy et al., 1992). Accordingly, it is essential to reconsider the methodological issues from an empirical perspective.

By using accounting data, financial ratios have often been used to measure the characteristics of firms, although they suffer from some distortion and bias. Three examples of methodological approaches have been reviewed to demonstrate the types and sources of the main biases and distortions when using accounting data. The use of accounting data is less reliable, but the methodologies of using it offer direct tests of disciplinary and synergy hypotheses. In addition, a large number of studies have confirmed the importance of accounting data to corporate management teams and to the stock market (Kelly and Tippett, 1991; Brief and Lawson, 1991; Higson, 1991; Breton et al., 1993).

Moreover, the *ex-post* performance analysis is also used to discover whether takeovers improve a firm's profitability and productivity. However, this type of study usually suffers from the sample selection bias. Previous research offers several approaches to control it, but this study will employ takeover rumour data to address this problem. The different way of using rumoured M&A data will provide a new insight into the M&A research.

The remainder part of this chapter is structured as follows: the next section will review the study methodology by using published accounting data. The bias and distortion which cause inconsistent estimation of accounting data study are examined. Particularly, the following section will mainly discuss the selection bias and the counterfactual issue and review several prevalent approaches which are used to overcome these issues. The fourth part will explain the choice of a probit model. The final section offers a summary and conclusion of this chapter.

3.2 The Use of Accounting Data

The use of accounting data shows advantages in direct tests of the disciplinary and synergies hypotheses. For example, the accounting data can be used to examine the pre-M&A performance of targets and acquirers in which to test whether the efficient firm overtakes the inefficient one. However, the accounting data suffers from the potential bias and distortion (Cubbin and Hall, 1979; Meeks and Meeks, 1981).

3.2.1 Biases in Published Accounting Data

The bias can result from the historic cost convention and the accruals concept with using accounting data. Three examples of these biases and distortions are reviewed below. First, researchers usually use ratios of profits (earnings) to sales to measure profitability. Sales revenue seems to be most reliable of all the accounting numbers because it is seldom influenced by subjective judgments comparing with many other accounting categories. However, Meeks and Meeks (1981) argue that the mutual sales between merging firms or trade with the third parties prior to the merger will be considered as an internal transaction post-merger. This will make sales decrease, which accordingly lifts measures of profitability on an upward bias. The replacement in an internal transaction takes place in the M&A practices. Thus, it is impossible to articulate the extent of this potential bias. The phenomenon can be identified more easily in the case of vertical mergers, although it exists in all types of M&A activities. More specifically, to transform an external trade into an internal trade may reduce the transaction cost for firms, which motivate firms to evolve into vertical M&A.

The second example is that the financial gearing may cause bias to the rate of return on equity. It is suggested to use ratio of return on equity cautiously to measure the improvement of performance (Meeks and Meeks, 1981). Meeks and Meeks indicate an positive causality between gearing ratio and the return on equity. If gearing ratio changes in certain M&A, it may

simply affect the return on equity measure. This means that the return on equity can be shown as an increase due to more gearing, even though the actual productive efficiency may have decreased post-merger. Hence, there is an bias to use the return on equity as an efficiency measure.

The third distortionary bias comes from accounting practice during consolidating a firm's assets between targets and acquirers (Meeks and Meeks, 1981). Given the assumption of managerial hubris, acquirers often pay a higher price, which exceeds the true value of the target's assets in M&A. A higher book recording of the acquired assets will be reflected in the books of the acquirer firm. Therefore, any return on assets measure will be biased downward post-merger.

3.2.2 Implications of Distortionary Bias

The problems outlined above show that the post-merger profitability observed will be generally overstated. Thus, Meeks and Meeks (1981) imply that any profitability improvement cannot be claimed as evidence for increased efficiency post-merger on a conventional accruals basis. In fact, given the expected upward bias, any increase in post-acquisition profitability does not necessarily mean improvements in productive efficiency. However, the decline in post-acquisition profitability will expect a fall in productive efficiency.

3.3 Sample Selection Issue and Correction

3.3.1 The Sample Selection Issue

The sample selection brings out another bias which more severely influences the consistency of *ex-post* studies than that of *ex-ante* studies by using pre-M&A financial characteristics. This section will address this problem by using firm's productivity analysis because the selectivity issue is often raised in such a study. There is an argument that the improvement of firm performance might not result from the effect of takeover but from the productivity advantage on its own. Harris and Robinson (2002) show that foreign investors tend to acquire firms with higher productivity in comparison with other manufacturing firms in the UK. Furthermore, Griffith et al. (2004) indicate that the foreign-owned multinationals are observed with higher productivity at the economy-wide level because they are located in high productivity sectors per se.

Abstractly, the sample selection issue often occurs when estimating the relationship between

treatment status (e.g. one firm is acquired by another firm) and productivity using firm-level data (Moffitt, 2004). Ample studies make attempts to compare a 'treatment' group with the rest of the population because some doubt the randomness of the treatment group sampled from the population of all firms. Heckman (2000) and Heckman and Navarro-Lozano (2004) illustrate the standard evaluation problem in their literature. The focus is on the existence of a bias in assessing the outcome (Y_i) of the treatment effect with differentiating the firms which receive the treatment (T_i) or not. This can be expressed as:

$$E[Y_i| T_i = 1] - E[Y_i| T_i = 0] \qquad (3.1)$$

The above expression can be used to assess the effect of treatment with knowing the observed information. This equation can be rewritten as:

$$E[Y_i^1| T_i = 1] - E[Y_i^0| T_i = 0] \qquad (3.2)$$

The above expression refers to the difference between the outcome (Y_i^1) after receiving the treatment (T_i) in terms of participants ($T_i = 1$) with the treatment experience and the outcome (Y_i^0) without the treatment (T_i) in terms of non-participants ($T_i = 0$) without the treatment experience. However, the outcome for those participants of treatment is unobserved if they had not receive the treatment (i.e. $E[Y_i^0| T_i = 1]$). This counterfactual term expands the above expression to be:

$$E[Y_i^1 - Y_i^0| T_i = 1] + \{E[Y_i^0| T_i = 1] - E[Y_i^0| T_i = 0]\} \qquad (3.3)$$

Hence, the difference of outcomes between treated and untreated firms can be decomposed into two parts which are the effect of 'treatment on the treated' (the first term in the above expression) and a bias term (the second major term after the plus sign). According to Angrist (2001), the random assignment of treated firms or the independence between T_i and Y_i^0 would make the bias term be zero. For example, if the potential of acquisition target is independent of the improvement of firm's productivity from the acquisition, the bias term would be zero. However, this kind of independence seems to be unrealistic because the potential of obtaining productivity gains from M&A often becomes the consideration factor when choosing targets for acquisition. One expectation is that the firms with high growth potential will be more likely to achieve better performance than average. In particular, the bias term of above expression shows that the improvement of involving firm's productivity might have originated from the advanced

characteristics of the firm itself rather than the effect of takeover. Besides, the advanced characteristics will influence the decisions on acquisition. Thus, it is essential to achieve an estimate of the unobserved counterfactual information in assessing the effect of takeovers. This counterfactual information is unbiased due to the simultaneous relationship between the decisions on acquisition and the potential gains from such acquisition.

3.3.2 The Problem of the Counterfactual Issue

There is a counterfactual issue in the case of post-merger performance research. This issue presents a question: how the performance of the two involving firms would change if the M&A had not happened? There is rarely a direct answer fort this question, but researchers attempt a number of proxy methods to solve the problem. Researchers either attempt an industry or size control group or compare pre-acquisition performance of the acquirer and target firms. The accuracy of estimates depends on the appropriateness of these proxies in solving the counterfactual problem. There is heterogeneity between the characteristics of firms even in the same industry or sector, which leads to a potential problem in control group methods. However, the advantage of these methods is that the control group provides a reference in predicting the pre-acquisition performance of targets and acquirers. The alternative comparison methods show less satisfaction due to the change in trading conditions over time. The difference between pre- and post-acquisition performance is affected by the feature of industry, timing and the fluctuation of the business cycle. Besides, there is no direct relation between the difference of firm's profitability and change in its productive efficiency.

3.3.3 The Selection Bias in Performance Study on M&A

It is necessary for the study on the effect of foreign M&A to compare both the pre- and post-acquisition performance of the involving firms. With respect to the pre-acquisition firm's productivity, it is argued that the foreign MNE will either acquire outperforming firms to take advantage of their better firm performance based on the operational efficiency view, or acquire underperforming firms to improve them stemming from the managerial discipline hypothesis (Conyon et al., 2002; Girma et al., 2001). In either case, there is usually a selection bias in the investigation of post-acquisition impact of foreign M&A with simply comparing acquired and non-acquired firms. Thus, such a simple analysis cannot reveal a causal link between the foreign takeover and its effects.

The selection issue suggests that firms involved in a foreign M&A may not be sampled randomly from the total population of domestic firms. It is believed that the choices of foreign M&A are impacted by certain criteria, i.e. the pre-acquisition performance of firms such as productivity, return on assets/shares, managerial performance, growth potential and industry-specific characteristics. This implies that M&A activity may not be a random process but subject to pre-acquisition characteristics. It is explained that the pre-acquisition characteristics of the involving firms are related to possible gains for the acquired firm. According to Bellak et al. (2006), the disciplining effect of the takeover will be exerted on the acquired underperforming firm's management and improve the efficiency of acquired firms based on the managerial inefficiency argument. From the other aspect, the acquired firm can get access to the new parent's firm-specific resources and obtain additional efficiency gains (Bellak and Pfaffermayr, 2002).

Numerous researchers adopt the pre- versus post-M&A performance approach. The evaluation of change in firm performance on the certain periods after the year of cross border M&A occurrence provides a base for the comparison between the actual performance and the situation had the firm not invested abroad. However, the focus of concern is whether an acquired firm would have had a different firm performance (e.g. productivity), if it had not been acquired by other foreign firms. This is so called unobservable counterfactual situation. Although the post-M&A firm performance of the combined entity and the joint pre-M&A firm performance of independent firms can be compared, it is hard to assess the imponderable counterfactual situations of firm performance where M&A is non-existent because there is the unobservable post-M&A firm performance of the combined entity in the non-existent case. Specifically, it is not observable for the change in productivity or profitability if the firm naturally grows *per se* without considering the impact of M&A in the counterfactual situation. Thus, simple comparisons between foreign owned and domestic firms are biased. Traditional regression analysis is not robust due to this endogeneity problem and will also yield biased results. If the counter-factual issue can be coped with adequately, less constraint will be limited to measure the validity of inferences drawn from these performance studies. Recently, many suitable econometric methods, e.g. a matching estimator approach, have been employed to simulate this counterfactual situation. These methods will be introduced in the following section.

3.3.4 Correction Approaches

3.3.4.1 The Propensity Score Matching (PSM) Approach

Several approaches are exploited to eliminate the bias resulted from self-selection (Blundell et. al., 2005). The first approach is matching in the firm's productivity study, which refers to match every acquired firm with another non-acquired firm but possessing (very) similar characteristics. The matching approach presumes the same observable features in affecting firm's productivity between acquired- and non-acquired firms except for the condition of receiving treatment (here is acquisition). In other words, the impacts on productivity should be the same in both cases without considering the acquisition. Accordingly, the non-acquired matching group proxy the real counterfactual group, which provides the missing information on the change in performance of acquired firms if they had not experienced takeovers.

According to Rosenbaum and Rubin (1983), a probit/logit regression technique is used to generate scores in order to match firms in the propensity score matching algorithms. The matching process requires a rich dataset covering all the relevant influence factors of firm performance and those of takeover occurrence. Thus, unobservable selection bias seems to impact insignificantly on the performance without respect to takeovers. Heckman and Navarro-Lozano (2004) argue that too much information about the decisions on takeover will reduce the size and significance of the treatment group, which limits the effectiveness of the matching approach.

In empirical design of matching firms, Bryson et al. (2002) and Imbens (2004) provide a detailed and useful discussion. The propensity score matching approach commonly develops a model to predict the probability of likely target. Thus, the propensity score can be derived to identify the closest match during the matching procedure (Girma et. al., 2004). Several issues should be considered in the propensity score matching technique.

First, it is important to decide the variables which should be included in the probit model. It is indicated that the propensity scores could be seriously biased in generating the control group due to lack of important variables. However, some variables are affected contemporaneously by treatment such as acquisition, and the anticipation of acquisition has not impacted their value before acquisition. These variables at period (t-1) can be included (Caliendo and Kopeinig, 2005). Additionally, Heckman and Navarro-Lozano (2004) imply that the variables with insignificant impact on the outcome variable should be excluded. Indeed, Bhattacharya and Vogt (2007) show that the propensity score model should exclude some instrumental variables

which determine the potential of the acquired firm but are uncorrelated with the outcome variable.

Second, the fixed effects should be concerned when estimate the propensity score model with the panel data. The equation is written as follows:

$$P_{it} = \beta X_{it} + \mu_i + \varepsilon_{it} \qquad (3.4)$$

where μ_i is fixed effects. Such fixed effects are potentially related to the explanatory variables, which result in biased estimates of the model parameters β. This is especially problematic for the probit estimator which involves a non-linear approach. The maximum likelihood methods are employed in the estimation of above equation. An inconsistent estimate of sample $\hat{\mu}_i(\beta)$ constructs the unobserved term μ_i into the function of other parameters β in the model. According to Fernandez-Val and Vella (2007), the parameter estimates are biased due to their correlation with the individual fixed effects in these models. To solve this problem, they present correcting the bias in the probit fixed effects estimator, but this approach is practically unavailable in standard econometric packages (e.g. STATA). Wooldridge (2002) attempts an alternative approach which divides the panel probit model into cross-sectional one by period t, and then derives the propensity scores of each firm i. Finally, a control group is generated from the results constructed by period t and firm i.

With respect to the fixed effects, an alternative panel data estimator is random effects, which assumes that the term μ_i is unrelated to the explanatory variables and thus reflected in the error terms in the model. The random effects approach requires that the panel data is composed of firms chosen randomly from a large population. This ensures a random distribution of μ_i. In contrast, the fixed effects approach is more appropriate in the panel data without randomly choosing from the population because a time-invariant individual effect is expected to relate with each firm (Lancaster, 2000). The random effects approach and the fixed effects approach are exclusive to use for the regression model. Accordingly, a fixed effects regression approach will provide inconsistent estimates for a random effects selection model. Similarly, the fixed effects regression approach requires the normal distribution of the error terms in the model. Therefore, it cannot be applied to a logit model due to a logistic distribution of the logit estimator.

3.3.4.2 The Difference in Difference Matching Approach

The second approach of eliminating the bias caused by self-selection is the difference in difference estimator. With holding the pre- and post-treatment information (denoted t-1 and t respectively), the effect of treatment can be predicted as following expression:

$$\{E[Y_{it}^{1}| T_i = 1] - E[Y_{i(t-1)}^{0}| T_i = 1]\} - \{E[Y_{it}^{0}| T_i = 0] - E[Y_{i(t-1)}^{0}| T_i = 0]\} \qquad (3.5)$$

where the first part of expression refers to the difference in outcomes of treated firm between the pre- and post-treatment periods (from t-1 to t). The second part refers to the difference in outcomes of untreated firms between the pre- and post-treatment periods (from t-1 to t). The difference-in-difference estimator assumes that the change in outcomes of counterfactual term is identical to that of untreated firm (i.e. non-acquired firm) between two periods (t-1 and t). This is expressed as follow:

$$\{E[Y_{it}^{0}| T_i = 1] - E[Y_{i(t-1)}^{0}| T_i = 1]\} = \{E[Y_{it}^{0}| T_i = 0] - E[Y_{i(t-1)}^{0}| T_i = 0]\} \qquad (3.6)$$

The missing counterfactual outcomes that acquired firms would have undergone, if they had not been acquired, can be derived as:

$$\{E[Y_{it}^{0}| T_i = 1] = E[Y_{i(t-1)}^{0}| T_i = 1]\} + \{E[Y_{it}^{0}| T_i = 0] - E[Y_{i(t-1)}^{0}| T_i = 0]\} \qquad (3.7)$$

Therefore, specifically, the counterfactual outcome equals the outcome of the acquired firm before takeover plus the change in outcomes of all non-acquired firms over the period t-1 and t.

The assumption about the counterfactual term is the major issue that should be concerned in the difference-in-differences approach. Essentially it is assumed that the outcome effect for acquired firms without takeover happening would actually be the same to that experienced by non-acquired firms. However, this assumption of condition may not be hold if the acquired firms possess the characteristics which can ensure the better performance of firms themselves in absence of takeover.

Furthermore, the difference in difference approach is usually conducted along with matching method, which is called the difference in difference matching method. The *ex-post* empirical research aims to investigate the causal effect of takeover on firm performance in terms of profitability or productivity. One challenge is the unobserved performance of acquired firms in the absence of takeover which is the counterfactual issue. This aforementioned issue has been

addressed by previous researchers who use a propensity score matching (PSM) approach (Rosenbaum and Rubin, 1983). This approach aims to compare the performance of acquired firms with that of control group (i.e. non-acquired firms) with similar observable characteristics. However, the selection bias might also bring inconsistent estimates with time-invariant unobserved firm characteristics. To eliminate this latter bias, previous researchers combine the propensity score matching with the difference-in-difference estimator (Heckman et al., 1979; Schiffbauer et al., 2009).

According to Schiffbauer et al. (2009), in the first stage, the propensity score is generated from the vector of pre-treatment characteristics with the propensity score matching approach. The propensity score is actually a conditional probability of a firm to be acquired. In the second stage, the counterfactual observations are substituted by non-acquired firms with a similar propensity score. This control group is used to predict the impact of M&A on a firm's post-acquisition performance. The difference-in-difference matching estimator is employed to control possible selection bias. Hence, it is compared between the change in pre- and post-M&A performance of acquired firms and that of non-acquired firms with an equivalent *ex ante* probability of being acquired in terms of firm characteristics and time-invariant unobservables (Leuven and Sianesi, 2003).

Based on Schiffbauer et al. (2009), the difference-in-difference matching method offers a robust inference in predicting the impact of acquisition on the firm's productivity if the acquisition is unrelated to the potential counterfactual pre- and post-M&A outcomes derived from the propensity score. This is the so called independence conditional assumption on observables where the pre-acquisition variables should be decided by considering both the acquired and matched groups. The unbalance between the two groups possibly results in misspecification of the propensity score estimation.

3.3.4.3 The Instrumental Variable (IV) Approach

The third approach of overcoming self-selection bias is the instrumental variable (IV) estimation. If a variable is identified to influence the decisions of takeover but not influence outcomes directly, it can provide an instrument for the dependent variable (P_{it}) in the probit model (i.e. whether a firm is being acquired or not) to solve the problem of self-selection. In other words, such an instrumental variable provides the outcomes with an indirect influence due to its impact on the decisions of takeover, but is not necessary to include directly such an

instrumental in the outcome equation. Consequently, it is an exogenous variable in constructing a model to investigate the effect of acquisition decisions. It is crucial to identify an appropriate instrument in the IV approach. Angrist and Krueger (2001) indicate: "…good instruments often come from detailed knowledge of the economic mechanism and institutions determining the regressor of interest" (p. 73). The features of instruments are time invariant (e.g. pre-acquisition characteristics) (Blundell et al., 2005). However, in this study the author does not have access to any valid instruments; all the variables that determine the status of M&A can validly enter the model determining profitability and productivity.

3.3.4.4 The Weighted Estimation Approach

The fourth approach of eliminating sample selection bias is weighted regression. The selection bias causes that the influence factors are exogenous in the population but endogenous in the sample. When the probability of acquisition is correlated with the influence factors, unweighted regression will produce the inconsistent estimated parameters (Heckman, 1979; Hausman and Wise, 1981; Magee et al., 1998). Therefore, in order to obtain a consistent estimator, it is necessary to verify the sampling in terms of endogeneity or exogeneity. If there is a possibility of endogenous sampling, a weighted regression should be constructed for use.

However, a large error variance may occur sometimes in weighted regression, so other additional information is included to adjust the estimation with alternative procedures (e.g. the two-stage procedure proposed by Magee et al. (1998). Butler (2000) proves that the weighted General Method of Moments (GMMs) can diminish the variance of the estimator comparing with unweighted GMM and weighted conditional maximum likelihood estimation.

The selection bias can be detected with the Hausman test by identifying differences between unweighted and weighted models (Magee et al., 1998; Wooldridge, 1999; Butler, 2000). The weighted regression is appropriate in the existence of selection bias. However, there is a possibility of misspecification in the model if the difference between unweighted and weighted models is large (e.g. DuMouchel and Duncan, 1983; Skinner et al., 1989). In addition, the issue of endogenous sampling will remain if the model is correctly specified.

3.3.5 The Use of Takeover Rumours in Tackling Selection Issue

When investigating the determinants and performance of cross border M&A, it is important to

construct the treatment group and the control group in the experiment with certain treatment (i.e. whether the cross border M&A is conducted or not in this research). To date the research on M&A likelihood has been exploited in several ways to construct the control group. Some previous studies have assessed the characteristics of takeover target firms in order to better understand M&A activities (e.g. Rossi and Volpin, 2004; Powell and Yawson, 2005), while other studies focus on developing takeover likelihood prediction models (e.g. Stevens, 1973; Dietrich and Sorensen, 1984; Hasbrouck, 1985). Ample studies make attempts to compare a 'treatment' group with the rest of the population because some doubt the randomness of the treatment group sampled from the population of all firms. In the previous research, non-target population has been referenced as a control group in previous target likelihood prediction models. These models divide companies into two groups: target companies and non-target companies. Amongst these, non-targets are sampled from firms which are not taken over non-randomly (Stevens, 1973) or randomly with some matching procedures (Hasbrouck, 1985; Palepu, 1986; Espahbodi and Espahbodi, 2003). However, some selectivity bias may occur in selecting the control group which are the non-targets sample or non-M&A sample.

In the process of sample selection, most recent studies have taken the (potential) selectivity bias into account. They use propensity score matching techniques to construct a comparison or control group (Fukao et al., 2006; Mattes, 2010). According to Rosenbaum and Rubin (1983), the goal of the matching procedure is to match non-involving firms with involving firms in a similar range of observable characteristics. The propensity score matching procedure requires the conditional independence assumption. It is assumed that selection into treatment is on observable characteristics only and that unobservable variables do not influence simultaneously the treatment assignment. However, one potential concern with propensity matching estimation is that decisions of firms in the comparison group might be influenced by the involving firm's decisions to conduct M&A (Caliendo and Kopeinig, 2008). The approach is valid only if the stable unit treatment assumption holds. If the involving firms affect behaviours of competitors in the comparison group because of strategic interaction, the results might overestimate or underestimate the likelihood of cross border M&A.

In the experiment with a treatment of whether to conduct the cross border M&A, the control group selected from the non-targets population with matching technique is either the firm which satisfies the conditions of M&A but is not acquired or otherwise an irrelevant firm. Whether a target is acquired or not might be subject to other factors which do not necessarily determine

M&A. Thus, the matching approach in the previous literature can only identify the factors which differentiate whether a group belongs to the potential treatment group or not. In particular, the firm factors are found to determine whether a firm is the target or not in the research of M&A.

In terms of takeover rumour data, previous researchers primarily explore the effects of takeover rumours date and announcement date on predicting likely targets in M&A activities (Chou et al., 2010; Schausen, 2011). Alternatively, they assess the effect of takeover rumours on the shareholder wealth (Antweiler and Frank, 2004; Clarkson et al., 2006; Lachapelle, 2011; Wortche and Nguyen, 2011). Rumour contains some degree of uncertainty (Chou et al., 2010). Although only a small proportion of takeover rumours end in an actual acquisition (Clarkson et al., 2006), the takeover rumours provide a potential pool of M&A deals with a linkage between potential acquirers and targets. However, no previous literature has been found to use takeover rumour data as a control group in assessing likelihood of M&A and its performance. Thus, this research will employ takeover rumour data. Particularly, the treatment group refers to target firms in the previous research and completed takeovers in this research, while the control group refers to matched non-target firms in the previous research and rumoured-only takeovers in this research. It is directive to sample the treatment group.

In this study, the rumoured but uncompleted M&A deals compose a comparison group. They provide the similarity of in range of completed deals characteristics. The control group selected from rumoured but uncompleted M&A population is the deals which satisfy the conditions of M&A but do not exist in the end. This control group will facilitate to test what factors may influence the completion of M&A and how the M&A affects firm performance. Therefore, the use of takeover rumours can identify the factors which differentiate whether a group has received an actual treatment or not. In other words, the factors are found to determine whether a cross border M&A is completed or not finally in this research. Both matching approach and takeover rumours sample can provide a construction of the control group for examining the determinants of cross border M&A. However, comparing with matching approach, the latter sample offers a more direct way to overcome the potential selective bias and can identify more accurately the potential influence factors of M&A. Therefore, this study employs directly rumoured data as a comparison group rather than propensity matching techniques.

3.3.6 The limitations of Rumour Data

The disadvantage of rumours results from their basis on uncertainty rather than on facts (Rosnow 1987, 1988). Rumours on M&A can cause insecurity and instability among stakeholders of companies. Internally, employees might decrease their trust in management. Both management and employees may choose to devote less effort towards the business of their company if they feel its future is uncertain. For example, from a view of behavioural psychology, Angwin (2004) indicates that sustained uncertainty amongst workforces will erode the soundness of post-acquisition integration due to the cumulative effect of rumour. Externally, clients and customers may be reluctant to bring firms the new business if they think firms are undergoing significant organisational changes that could limit the attention or care they give to clients. For instance, business practice provides ample evidence on increased customer uncertainty due to M&A rumours in the market (e.g., Reichheld and Henske, 1991).

Additionally, Hoitash and Krishnan (2008) find that investors usually overreact to takeover rumours and firms show a high degree of speculative intensity. Gao and Oler (2012) suggest that the highly uncertain information in rumours could be digested by the market and be reflected in the significant pre-announcement price change. They find that rumoured firms experience a greater price run-up prior to announcements due to circulating rumours. Such significant price movement due to rumours and speculation may increase the transaction cost in M&A and diminish the potential positive performance of M&A.

Therefore, takeover rumours could create bias in the estimation of M&A performance, especially for the abnormal return, because the change in price and firm performance may take place during the rumoured period instead of on the date of the takeover event. The impact on M&A performance may be partially determined by rumours other than M&A event per se. Thus, any possible significant effect from M&A event could be diluted during the rumoured period.

According to Jarrell and Poulsen (1989), takeover rumours may be generated from various sources, including mandatory disclosure by large shareholders, guru following, and trading observers. They can be spread through channels such as word of mouth, online chat-rooms or message boards. Analysts, investment advisors and newsletter writers sometimes involve themselves as rumour generators. In this research, a takeover rumour can be clearly identified based on a variable of deal status which explicitly indicates ‘rumour’ status in Zephyr database. Rumour data may encounter challenges and doubts on its reliability as rumours are disseminated informally among market participants without constant sources. However, rumour data can be collected easily through this approach, and the sample suffices to illustrate its role

of comparison.

3.3.7 Reflection on Data Use

This research employs M&A data and firm information for 2002-2011 from the Zephyr and Orbis databases. Such time span of the data covers the recent global financial crisis. Thus, we should consider the impact of this crisis on the fluctuation in M&A activity and their consequent performance. The M&A activity may accelerate the fluctuation in its volume as the variations of credit tightness and market sentiment in the crisis. Some argue that the crisis has had a significant striking effect on the performance of multinationals after overseas transactions.

However, Yang and Driffield (2012) suggest that the financial crisis has had no direct impact on the return to multinationality in their meta-analysis. They argue that the performance of multinationality is over-estimated in the studies which focus on firms in a time of crisis. They indicate that multinational firms may suffer from difficulty in access to necessary working capital and long-term investment financing at a time of crisis, but corporate growth *per se* also undergoes the same situation. As such, the financial crisis does not show a significant heterogeneity in the investigation on the impact of cross border M&A on firm performance. In other words, the firm performance would be positive if international takeovers indeed improve firm's operation, even such M&A occurs in the period of crisis. In contrast, the firm performance would be negative if international takeovers do have a detrimental effect on firm's operation; even such M&A takes place in a period of economic prosperity.

3.4 The Use of Probit Model

Many scholars in the mergers field use multiple discriminated analysis (MDA) to study two objectives (e.g. Holl and Pickering, 1988; Barnes, 1999). The first objective is to predict takeover targets by using the financial characteristics of firms. The second one is to differentiate between bidders and targets based on their respective financial characteristics. The assumptions of MDA require the normal distributions on multivariate data and the equal covariance structures for sampled data. Kolomogorov-Smimov tests are usually employed to test non-normality. However, some researchers argue that the multivariate normality will affect the accuracy of this technique. In practice, it is difficult to identify the critical value of non-normality where it can maintain the performance of MDA in a statistical test (Flury and Riedwyl, 1988).

The existence of a binary or dichotomous dependent variable for the present study obviously violates the usual required assumptions of the error term. Accordingly, the classical statistical tests are inappropriate (Pindyck and Rubinfeld, 1981). Multiple regressions provide an alternative technique because it has no such exacting requirements on the data. The probit model in the form of the general log linear models can be used to overcome these problems and analyse the dataset with a dichotomous dependent variable. In the context of the present study the dependent variable (the probit) would stand for the log odds, or relative probability of a M&A deal in the sample being completed or just rumoured but uncompleted. It is defined by a binary response variable giving the value 1 if the deal is rumoured and completed and zero if the deal is rumoured but uncompleted.

According to Demaris (1992), probit modelling approach utilises a cumulative probability function which constrains estimated values of the dependent variable (probit) to lie within the (0, 1) interval. There are a number of alternative cumulative probability functions available, but the compositions of logistic and normal distributions are most often seen in the economics literature. Different distributions are composed to the logit and probit probability models respectively. The statistical software has made logit and probit models ready for use. Logit or probit models are more appropriate in the regression with categorical or ordinal variables. Compared with least squares regression and discriminated analysis, logistic regression shows less restriction on the data and meaningful interpretation for parameter estimates. Most research in the M&A literature utilise the logit modelling approach for predict potential targets from the general population of firms (Dietrich and Sorenson, 1984; Hasbrouck, 1985; Powell and Thomas, 1994). The present study will use the probit modelling technique to discriminate the status of M&A completions.

3.5 Conclusion

This chapter has presented a review and critique of research methodologies applied to M&A. It has examined the advantages and drawbacks of the *ex-post* M&A study approach with using accounting data. A number of the important biases were listed, as were the issues of sample selection bias and the problem of the counterfactual situation. Several approaches such as the propensity matching, IV approach, difference-in-difference matching approach, and weighted regression were reviewed as means of controlling for sample selectivity effects in the literature. However, they suffer from various limitations which impact the accuracy of such an approach. For example, matching approaches can only identify the factors which differentiate whether a

firm belongs to the treatment group or not. Nevertheless, the determinants of treatment occurrence are different from those of the treatment group.

By using the takeover rumour data as the control group, this research is able to directly identify the factors that differentiate whether a firm has received an actual treatment or not. This chapter briefly introduced how the rumoured M&A data overcome the sample selection problem in spite of its limitations. It provides a more direct method to construct the control group which simulates the counterfactual situation and reduces the selectivity bias for the later empirical chapters.

Due to the distortion and bias associated with methods of accounting data study on takeover transactions, this research will not attempt to compare pre-acquisition with post-acquisition performance. The use of accounting data will be restricted to provide the characteristics of firms in M&A transactions. Therefore, these characteristics will be utilised to assess the determinants of cross border M&A and the relative post-M&A performance of acquirer and target firms. Details of the descriptive statistics of data sample, research designs employed and hypotheses tested will be described in each chapter of the empirical work (chapters 4 to 6). Before assessing the post-acquisition performance of cross border M&A, it is useful to understand what factors determine international M&A activity. The rational of using a probit model is provided to achieve this objective. This also brings us to the next chapter about the motive analysis of M&A.

Chapter Four: The Firm Level Determinants of Cross Border M&A

4.1 Introduction

This chapter begins the empirical research which constitutes the substantive contribution of the thesis. In order to examine the impacts of M&A activities on the firm performance in the subsequent chapters, it is necessary to explore the factors which influence international M&A decisions. Therefore, the aim of this chapter is to investigate the determinants of cross border M&A completions. The focus of this work is to extend the existing empirical evidence in the field of cross border M&A and to explore the likelihood of M&A from a different perspective. This research exploits a hitherto unused database which includes those firms that are rumoured to be undertaking M&A, and then follow the deal to completion or abandonment. In other words, this work aims to identify the factors that facilitate a cross border M&A deal successfully completed after it is experiencing a takeover rumour. This approach highlights a number of limitations to the previous literature, which relies on statistical methodology to identify potential but non-existent mergers.

Acquiring an existing business can provide the acquirer with the target's ready-made resources such as a knowledge base, technology and high control over assets (Berk and DeMarzo 2007). Thus, a growing number of multinational companies tend to choose the form of cross border M&A as their approach to overseas expansion in international markets. The large population of cross border M&A interestingly attracts academic research to continually explore the motives of international takeovers.

This research will primarily employ the firm level variables to examine the determinants of international takeovers. The previous literature of M&A examines the influence factors on the likelihood of takeovers with three different sets of variables: firm level, e.g. size, dividend yield, total debt to equity, and others, (Hasbrouck, 1985; Palepu, 1986), industry/market level, e.g. industry disturbance (Palepu, 1986), and country level, e.g. accounting standards, investor protection (Rossi and Volpin, 2004). The literature has proved a large number of relevant firm level takeover determinants such as size, leverage and liquidity, but only a limited number of industry/market level and country level variables (Anand and Delios, 2002). Following the majority of research, this research will mainly examine the firm-level factors in terms of the profitability, liquidity, corporate financial leverage, intangible resource and firm size. The likelihood model of takeover completion in this research includes the firm-level variables.

In this research, the author will highlight the distinction point which is different from the previous research. The potential contributions are described as follows: first, this study will employ the takeover rumour data from a different perspective and build a different M&A likelihood model from previous literature. In previous studies on M&A likelihood to date, some have assessed the characteristics of takeover target firms in order to predict a likely takeover target (e.g., Shleifer and Vishny, 2003; Rossi and Volpin, 2004; Powell and Yawson, 2005), while others focus on exploiting the accuracy of prediction in developing takeover likelihood models (e.g. Stevens, 1973; Dietrich and Sorensen, 1984). In the previous research, non-target population has been widely exploited as a control group in the target likelihood prediction models. Being different from the previous research on M&A, to the author's best knowledge, it is the first time that rumoured but uncompleted M&A data is employed to construct the control group in this study. The takeover rumour data provides a more direct way to imitate the counterfactual situation and overcome the sample selection problem compared with the use of a propensity score matching technique (Girma et al.2001; Conyon et al. 2002). With this advantage of the control group, the takeover rumour is used to compose the dependent variable together with actual takeover. Therefore, the M&A likelihood model in this research is developed to investigate the determinants that influence the completion of cross border M&A.

Second, this study will identify the determinants of cross border M&A by selecting the factors from both the target firm side and the acquirer firm side. Previous researchers employ many characteristics of firms to predict likely targets, so the characteristics of target firms are widely examined (e.g. Shleifer and Vishny, 2003; Powell and Yawson, 2005). However, when detecting the determinants of M&A likelihood, it is not only the characteristics of target firms but also those of acquirer firms that will influence the probability of M&A activities (Espahbodi and Espahbodi, 2003). In fact, the impact of acquirer firms' information has almost been neglected in the literature. Therefore, in order to fill this gap, the characteristics of both targets and acquirers are clearly marked in this research. Using information from both targets and acquirers will be a contribution in constructing an M&A likelihood model. These factors can then be combined with the industry/market and country oriented variables in the takeover likelihood prediction model.

Third, most previous research reports the impact of absolute size of the investment on acquisitions (Beitel et al., 2003). In contrast, relative size of investment is less concerned when detecting determinants of acquisitions. Therefore, the relative value of investment between

acquirers and targets will be employed in this research.

The remainder of this chapter is organised as follow: section 4.2 will provide a review of relevant theory and literature, and the hypotheses to be tested will be developed in this section. The data for the analyses will be discussed in section 4.3, where a specification of the data selection and appertaining descriptive statistics will be presented and discussed. The methodology applied throughout the analyses will be discussed in section 4.4. The empirical findings will be presented and discussed in section 4.5. Section 4.6 will conclude the empirical findings and comment on further study opportunities.

4.2 Previous Research and Hypotheses

4.2.1 Firm Level Analysis of Takeover Propensity

Regarding the exploitation of takeover likelihood, previous empirical studies have developed statistical models that use publicly available financial or other information to predict potential takeover targets. Palepu's (1986) article is perhaps the most celebrated one in this literature. Palepu (1986) proposes a logit probability model with nine independent variables for the estimation of a firm's acquisition likelihood. Early studies on predicting whether a company is subjected to a future takeover argue that their models have high accuracy in prediction (Stevens, 1973; Dietrich and Sorensen, 1984). However, Palepu (1986) reviews these models and criticises a methodological flaw in some acquisition prediction literature which draws a sample with an approximately equal number of targets and non-targets. He indicates that these non-random samples lead to biased and incorrect inferences. Thus previous researchers overstate the accuracy of their models. Palepu selects non-target firm randomly and uses conditional probability of a likely target to ensure the true predictive ability of the model. His result implies that the model does not predict targets with a high degree of accuracy long before the takeover announcements. Numerous empirical studies build upon Palepu's (1986) paradigm to investigate the accuracy of the takeover predicted likelihood. The vast majority of these studies focus on the USA (e.g. Ambrose and Megginson, 1992; Walter, 1994; Cudd and Duggal, 2000) and the UK (e.g. Powell, 1997; Barnes, 1999) markets.

Recently, Brar et al. (2009) extend Palepu's (1986) model and announce a relatively high accuracy of the proposed model in predicting European takeover targets. In Brar et al.'s (2009) approach of empirically assessing the distinguishing ability of the variables, they select a

random sample of firms from the non-target population as a control group for every year. The size of each control group matches the percentage of M&A activity in the corresponding year relative to the total activity over the entire sample period. For instance, if 10 per cent of the M&A activity occurred in 1998, they randomly select 10 per cent from the pool of the non-target firms in 1998. Firms from the non-target population are matched to a control group only once. Their approach of building up the control groups is different from Bartley and Boardman's (1990) matched-pair approach, i.e. the number of non-targets from each year equals the number of target firms for that year (e.g. Hasbrouck, 1985; Powell, 2001). These approaches involve significant sample selection biases because they assume equal number of targets and non-targets.

Most previous research measures the likelihood of cross border M&A by examining whether a target firm is acquired. This means that previous researchers pay their attentions on the occurrence of cross border M&A. However, this study measures the likelihood of cross border M&A by using the status of cross border M&A. In other words, the author is concerned about not only the initiation of cross border M&A events but also whether they are completed in the end after experiencing the takeover rumours. Therefore, this research will employ the firm group from takeover rumours as a control group rather than using random non-targets sample. Furthermore, this research will construct takeover rumour and actual takeover into the dependent variable, which is different from using probability of target as a dependent variable in previous literature. Thus an M&A likelihood model will be developed to explore the determinants of deals initially rumoured being completed, using a vector of firm level factors for both the target and acquiring firm. To my knowledge, no literature has employed this strategy before. Therefore, this will provide a new perspective to the literature on the likelihood of M&A, which will be the primary contribution of my research.

4.2.2 M&A Motives and Theories

The extant research in the field of studying motives of corporate M&A has experienced considerable controversy and disagreement within the economics domain (Chatterjee, 1992). In comparison to any other economic phenomenon in the corporate sector, the complexity of M&A activities results in the difficulty in obtaining the consistent results on influence factors of M&A likelihood. Some researchers exploit the firm specific advantages based on the framework of ownership – location – internalisation (OLI) which argues that multinational firms possess some advantages on the firm-level characteristics compared with domestic-owned firms (Dunning, 1980). Some researchers introduce motives of cross board M&A from

the resource based view (RBV) which states that the competitive advantage of a firm lies primarily in a bundle of valuable tangible or intangible resources within the firm's assets (Wernerfelt, 1984; Conner, 1991; Barney, 2001).

According to Dunning (1980), decisions on entering a new market in a different country could be based on the firm's success in the domestic country, where the firm wishes to exploit its competitive advantage to penetrate the market of another country. The successful core elements could be a brand name, good reputation, competent management or a high efficiency level, which could bring potential growth in cross border markets. Sudarsanam (2006) also indicates that motives behind cross-border M&A mainly involve enhancing market share, increasing presence in other geographical areas, acquiring new products or services or obtaining economies of scale. Furthermore, researchers have also developed a number of academic theories on M&A activities such as synergies motives, the market for corporate control, free cash flow theory and managerial theories and so on.

Chatterjee (1986) suggests that mergers will only occur when both parties believe the deal will make enough realisable synergies beneficial to them. Hitt et al. (2001) argue that 'synergies' generated from mergers increase the value of both acquirer and target firms. To achieve a 'friendly' merger, the synergies should be created for both parties symmetrically. Neither acquirer nor target is willing to complete the deal if the counterpart obtains the positive gain while it suffers from negative value itself (Klein, 2001). Therefore, synergy is a motive of takeover, especially when firms acquire more profitable targets (Goergen and Renneboog, 2004).

According to Chatterjee (1986), operating and financial synergies are the two of the rational explanations why firms acquire others. Devos et al. (2008) indicate that operating synergies are the significant gain of mergers through the economies of scale and economies of scope. Many firms strive to lower their fixed costs by obtaining economies of scale (Behr and Held, 2011). Firms can also benefit from combining distribution and marketing for related but diverse products via economics of scope (Berk and DeMarzo, 2009).

Financial synergies can be obtained when firms with large internal cash flows and limited growth opportunities incorporate other firms with low internal cash flows and greater growth opportunities. The capital can be lead from the former firm to the latter one. Thereby the lower internal financing costs will exhibit its advantage compared with possible expensive external

financing in the new combined entity (Sharstri et al., 2005)**.** Another financial synergy concerning tax benefits can arise when merging. The debt capacity of the combined firm can exceed the sum of debt capacity from each firm prior to their merger, thus larger tax shield generates more possible benefits from investment (Shih, 1994)**.**

There is another group of arguments that suggests unsuccessful takeovers although the potential volume of M&A activities may increase. In consideration of the potential unsuccessful results of takeovers, managements of firms may abandon the takeover attempts prior to the completion of M&A. This will cause some M&A deals uncompleted in the end. These explanations comprise free cash flow hypothesis (FCF) and empire-building hypothesis. In the first category, Jensen (1986b) developed free cash flow hypothesis (FCF) building on the agency cost literature. He argues that managements tend to exert their discretion over the capitals in existence of excess free cash flow. The second category is about the empire-building hypothesis which presumes that self-serving managers only maximise their private value rather than positively improve firm value (Dickerson et al., 1997). The empire-building hypothesis is highly related to the FCF theory. This implies that managers are implementing mergers to maximise their own utility rather than shareholder's value (Trautwein, 1990). The empire-building hypothesis is also supported by Mueller's (1972) growth hypothesis. He indicates that the salary and bonus of the management increase with the size of company, hence purchasing less profitable target firms provides a motivation for making the combined entity larger.

4.2.3 Empirical Evidence and Hypotheses Development

Building on the aforementioned theories and frameworks, this section will develop the hypotheses from a different focusing point. For some years, studies on M&A have attempted to characterise the variables that are likely to influence the likelihood of a takeover target. Many hypotheses have been tested in an effort to distinguish between more likely targets and less likely targets. Amongst these, the inefficient management, size, undervaluation and leverage of the target firm as well as acquisition activity in firm's industry have been widely tested (see Hasbrouck, 1985; Palepu, 1986; Cudd and Duggal, 2000; Rhodes-Kropf and Viswanathan, 2004; Brar et al., 2009). In order to build a model that can predict whether the rumoured deals can be completed, this research will develop the hypotheses about the following influence factors of cross border M&A according to previous empirical evidence. These factors are discussed as follows in terms of firm size, profitability, liquidity, corporate financial leverage level, and intangible assets from the firm level.

4.2.3.1 Firm Size

According to the theory of transaction cost, an acquirer always encounters costs such as integration of companies and fighting a long battle for the target during M&A activities. It is suggested that these costs increase with the target firm's size. Thus, the successful completed takeovers anticipate a negative relationship with firm size (Brar et al., 2009). Hennart and Reddy (1997) argue that cross border M&A will take place in the firms with small investment size due to the difficulty of integration between large firms, while the findings of Brouthers and Brouthers (2000) are totally opposite. They indicate that a large firm will encourage cross border M&A. Nevertheless, Cho and Padmanahan (1995) do not find the association between investment size and acquisitions. The mixed empirical evidence leads to hypothesis 1a:

Hypothesis 1a: The smaller a target firm, the higher the likelihood that a cross border M&A is completed.

It is often reported that the absolute size of the investment is a determinant of acquisitions, while it is necessary to investigate the influence of relative total value of investment on acquisitions (Beitel et al., 2003). Erramilli and D'Souza (1993) present that the application of research findings on large multinational enterprises need to be extended to small- and medium-sized firms. Weitzel and McCarthy (2009) recently studied the distinctive features of small- and medium-sized enterprises (SME) M&A. They find that M&A activities provide SME with an external growth base and deals of SME are more flexible. Due to the limitation of capital and market abilities, SMEs are often the targets in the cross border M&A activities. However, no significant impact from the SIZE-variable is detected in any of these models (Beitel et al., 2003; Zollo and Leshchinkskii, 2000). Based on the above evidence, the acquirer is expected to be bigger than its target in a takeover. Therefore, the hypothesis 1b about the firm size of acquirers is generated as follows. Additionally, the relative value of investment between acquirers and targets will be examined in this research.

Hypothesis 1b: The larger an acquirer firm, the higher the likelihood that a cross border M&A is completed.

Hypothesis 1c: The higher the relative firm size of an acquirer to targets, the higher the likelihood that a cross border M&A is completed.

4.2.3.2 Firm Profitability

Building on operative synergy, in an efficient merger market, corporate control hypothesis suggests that other firms or management teams are always willing to acquire an underperforming firm. Acquirers can remove those managers who cannot create synergies in order to promote the performance of target's assets (Weston et al., 2004). According to Manne (1965), the owners of firms often prefer those managers who can provide the highest value for their assets. The managers won't be replaced unless owners find another team who can offer higher value for their assets. Thus, inefficient managers cannot survive and managers are forced to maximise the profit.

When using profitability as the explanatory variable, the evidence of target under-performance relative to various control benchmarks is mixed. In consistent with the disciplinary hypothesis, targets are found to be less profitable compared to industry averages or the general population in some UK studies. Powell and Thomas (1994) postulate the less profitability of targets among the general population of firms. However, based on the discrimination analyses, Hughes (1989) reports that targets are not necessarily less profitable than average firms, and they show above-average performance in the case of non-horizontal takeovers.

Further to the UK evidence, the findings from the US studies are also rather mixed on this issue. For example, Bannister and Riahi-Belkaoui (1992) imply that targets underperform industry averages in terms of both cash flow and earnings as ratios of total assets by using data in the period 1977-89. Likewise, employing a control sample of the US firms from 1981-1990, Gonzalez et. al. (1998) identify that the US targets are lower in returns on equity and sales growth under foreign acquisitions. In contrast, Matusaka (1993) indicates that targets have significant higher profit rates over industry averages. This result supports the earlier finding from Ravenscraft and Scherer (1987a), that targets have high profitability prior to takeover.

Although some targets are acquired precisely because of being profitable (Lipsey and Feliciano, 2002), Chari et al. (2009) find the success rate of M&A is marginal for the previously profitable targets. Based on the corporate control hypothesis, foreign firms prefer to acquire less profitable firms because takeovers are seen as a mechanism to replace a management team that fails to maximise the market value of the firm (Bellak, 2004). Powell (2004) also implies that underperforming firms are more likely takeover targets than others. Therefore, the low profitability of target firm can affect the occurrence of cross border M&A, then it can facilitate

the cross border deals to be completed after experiencing the takeover rumours. The hypothesis 2a is generated regarding profitability from target side factors as follows.

Hypothesis 2a: The lower a target firm's profitability, the higher the likelihood that a cross border M&A is completed.

From the acquirer's perspective, if acquiring firms are profitable prior to the cross border M&A, it means that acquirers possess the high earning ability due to some specific advantages such as managerial skills according to the OLI framework. The corporate control hypothesis originates partially from efficiency theory. First, it focuses on the acquirer's managerial capabilities on the targets assets rather than the existence of synergies between the corporate assets of both firms. Hence, corporate control theory implies that efficient management reallocates poorly utilised assets, i.e. the firms with the advantage of high profitability will overtake those without this kind of advantage. Second, it is predicted that the takeover attempts will encounter resistance from the management team of the target because they are afraid of being replaced due to the managerial inefficiency on their own. Because of this resistance, the takeovers may not be easily completed. The success of a takeover completion depends on the extent of resistance from the target's management. Aforementioned FCF hypothesis implies that the management of an acquirer with low growth and sufficient cash flow will attempt various takeovers. Typical acquirers such as private investors and corporate raiders usually introduce a more competent management team or more efficient firms with better growth prospect and excellent performance (Houston et al., 2001). In general, the acquirers with high profitability are more likely to initiate the cross border M&A, but these deals are less likely to be completed successfully due to the potential managerial resistance. Therefore, the hypothesis 2b is deduced regarding profitability from acquirer side factors as follows.

Hypothesis 2b: The higher an acquirer firm's profitability, the lower the likelihood that a cross border M&A is completed.

4.2.3.3 Firm Liquidity

Building on the agency cost literature, Jensen (1986b) developed the free cash flow hypothesis to explain the way of using excess liquidity of the firm supported by some M&A deals. Jensen firstly presents that unsuccessful acquisitions do not result from over-confidence but the managerial discretion due to the presence of excess liquidity in his hypothesis of free cash flow

(FCF). He characterises assumptions of the divorce between the interests of managers and shareholders and a lack of competitive pressures in the product and the managerial labour markets. With these assumptions, the managers can exercise considerable free cash flows and unused debt capacity to undertake all positive net present value (NPV) projects, but wealth maximisation requires managers to pay out free cash flows to shareholders. However, Jensen implies that managers might prefer to retain free cash flow as a means of self-interested 'financial flexibility'.

A firm's fund can be either generated internally from the free cash flow within the firm or raised externally from the monetary market. The potential lender would have asked for a higher investment return rate if firms have to raise funds externally from the money market. However, if firms have sufficient free cash flow generated internally within the firms, the management would bear a very cheap cost of capital. According to Jensen (1986b), the internally financed investment is more difficult to be overseen compared with that financed externally because the former one uses the fund by allocating the financial resource from inside the firm. The difficulty in supervision of internally financed investment increases the chance of management abusing the large amount of free capital. In other words, when there is lack of surveillance, the management has more freedom to invest in any attractive investment project which another external potential lender might not favour. Especially, when firms experience low organisational growth but simultaneously generate large amounts of free cash flow, managers will attempt various ventures including unprofitable takeovers rather than reduce their discretionary powers by disgorging free cash flow to their shareholders. Namely, with high levels of liquidity, self-serving managers have more managerial discretion to choose poor acquisitions when there are no good ones (Martynova and Renneboog, 2008).

Moreover, it is suggested that the other stakeholders in the firm may trust their management and approve acquisition plans on the basis of high past and current cash flows in such situations (Rau and Vermaelen, 1998). The excess fund over required investments leads managers to make quicker and larger-scale strategic decisions without careful analysis than their fund-strapped peers. Thus, the FCF hypothesis suggests that the low level of caution in the existence of excess liquidity will lead managers to make poor decisions (Harford, 1999).

According to the managerial hubris argument, Malmendier and Tate (2005) indicate that over-confidence increases the chance that managers involve less profitable diversifying mergers. Empirically, Berkovitch and Narayanan (1993) find strong evidence of hubris in the US

takeovers. In addition, Goergen and Renneboog (2004) predict the managerial hubris is faced by one third of the large European takeovers in the 1990s. Based on the argument above, sufficient cash flow makes managers attempt more potential M&A activities. However, with more discretionary power and hubris, management is less likely to choose good business. This dramatically increases the chances of overpaying in M&A which leads to failure (Malmendier and Tate, 2008). Therefore, given the reasons which lead to potentially poor consequence, those M&A deals are more likely to be opposed by shareholders and disapproved by boards. Accordingly, they are less likely to be completed in the end. Hypothesis 3 is generated in terms of the liquidity from acquirer side factors.

Hypothesis 3: The lower the liquidity in an acquirer, the higher the likelihood that a cross border M&A is completed.

4.2.3.4 Corporate Financial Leverage

According to Lang et al. (1996), corporate financial leverage demonstrates the degree to which a firm's activities are funded by an owner's funds versus creditor's funds. It can be measured by gearing ratio. Generally, companies with higher leverage are thought to be more risky because they have more liabilities and less equity. A company with high gearing (high leverage) is more vulnerable to downturns in the business cycle because the company must continue to service its debt regardless of how bad sales are. A greater proportion of equity provides a cushion and is seen as a measure of financial health. Furthermore, from financial synergy theory, positive synergies can be obtained when a firm chooses to purchase another firm to lower its risk of bankruptcy at certain debt ratios. It makes the newly combined firm have an optimal proportion of debt in the capital structure and thus possibly declining the cost of capital for the firm (Titman and Grinblatt, 2006).

Jensen (1986a) has suggested a possible principal-agent problem that managers will fail to maximise shareholder wealth by keeping free cash flows and unused debt capacity away from shareholders. Holding large amount of cash flow financed from debt, managers have an opportunity to acquire other firms. Thus, it might be expected that acquirers display a higher gearing ratio than the industry average and targets. Although Jensen (1986b) pays considerable attention on acquirers rather than targets about the misuse of free cash flows and debt capacity, the firms with an inadequate use of leverage might be more likely to be targeted by acquirers (Bartley and Boardman, 1986).

Palepu (1986) assumes that financially distressed firms are more vulnerable in acquisitions because of their high probability of insolvency. In a principal-agent context, financial gearing is often considered as a form of managerial bonding cost (Jensen and Meckling, 1976; Jensen, 1986b). The issue of debt forces managers to pay out free cash flows under threat of bankruptcy (Smith, 1986). Thus, management teams of acquirers often use high gearing to show their stronger intentions to hold the mutual interests with shareholders than target managements (Jensen, 1986a). Jensen (2005) argues to use corporate debt as a much more powerful disciplinary device for avoiding agency problems associated with free cash flow. This means that high level of debt may reduce the M&A deals resulted from discretionary use of excess free cash flow.

However, there is an opposite effect with increased leveraged buyouts (LBOs). When innovative debt instruments are used to finance acquisitions such as so-called leveraged buyouts, financial leverage has become a major impact on takeover activity. Certainly the use of these techniques has enabled hostile takeover to be more powerful (Jarrell, 1988). The undervalued firms with sufficient cash are often acquired by other funds by using leverage to finance their transaction (Brar et al., 2009). However, Jensen (1987) argued that higher leverage has a negative impact on the takeover likelihood, because it is anticipated that the insolvency factor will weigh more than the influence of LBOs. Therefore, with a similar argument to liquidity factor, although managers equipped with high level of corporate leverage can conduct more potential M&A activities, those deals are less likely to be completed in the end due to their high operational risks. Underpinned by the principal-agent theory, hypothesis 4 is deduced about corporate financial leverage from acquirer side factors as follows:

Hypothesis 4: The higher the level of corporate financial leverage in an acquirer firm, the lower the likelihood that a cross border M&A is completed.

4.2.3.5 Intangible Assets

During selecting the international partners, firms from emerging countries focus on financial, technological and intangible assets, while firms from developed countries exploit for resources (Hitt et al., 2000). When a firm choose cross border M&A as a diversification strategy, it will seek complementary resources. It is indicated that the complementarity exists in assets between the acquiring foreign firms and the domestic target facilitates of the M&A entry (Norback and Persson, 2008). Shaver (1998) argues that the firm-level resource differences are often

neglected by those researchers. The resource based view (RBV) requires academics to pay more attention to organisational capability framework.

From a resource based view, Anand and Delios (2002) distinguish between technological capabilities and advertising intensive capabilities. The difference of resource types depends on whether a firm adopts capability-seeking or capability-exploiting acquisitions. A capability-seeking motive drives firms to look for the complementarities of assets such as technological advantages and certain brand reputation to the home country. For example, when transferring brands to overseas markets, an entry barrier such as a high level of advertising intensity will restrict the investment of firms in the host countries. As such, Anand and Delios argue that firms often choose the acquisition of existing brands in target markets. By contrast, in capability-exploiting takeovers, the tradability, fungibility and transferability of intangible assets influence significantly the accuracy of evaluation on such assets. For example, it is usually difficult to measure quantitatively the extent of absorption for technology and manufacturing technique. Accordingly, the uncertainty on the extent of acquiring intangible capability reduces a firm's willingness to participate in M&A activity. Thus, in an international business context, the M&A involving intangible assets will generate different propensity based on capability-seeking motive and capability-exploiting motive.

Delios and Beamish (1999) suggest that the possibility of cross border M&A is high when intangible assets are mainly acquired resources or the targets have high R&D and advertising intensity. Although most investing firms are interested in intangible assets or knowledge-based resources, it is difficult for investors to identify and manage those intangible assets or resources. Accordingly, based on the framework of TCE and RBV, it is very difficult to transfer the technology acquired from the target to a foreign location due to the potentially high transferring cost. By considering this high integration cost, acquirers may finally abandon the potential takeover attempts. For example, it is expensive and potential unsuccessful in training the acquired staff. Therefore, Brouthers and Brouthers (2000) indicate that the competitive advantage based on a complex technology will reduce the likelihood of cross border M&A. In the research of Hennart and Park (1993), further evidence stresses that acquisitions cannot enable firms to possess strong technological advantages in Japan. This kind of advantage possession is a variable which few studies analyse at the firm level.

According to the accounting definition, an intangible asset refers to identifiable long-term assets with no physical existence or substance. They include goodwill, patents, copyrights, etc.

Intangible assets can be created from either a business acquisition or internal development. In the former case business records intangible assets at their fair value in acquisitions, while in the latter case business recognises such assets from the cost incurred in the development phase. The value of intangible assets from internal developments relies obviously on the cost incurred in the balance sheet. Normally, the book value of such intangible asset equals its market value. However, it is usually difficult to evaluate intangible assets due to their intangibility. The value of intangible assets from business acquisitions is created during the process of transactions. It is influenced by the mutual consensus between targets and acquirers based on their respective value appraisals. For example, intangible assets often measure the tacit resources of firms which are often over-valued by firms themselves (Crook et al., 2008). This often causes different appraisals from targets and acquirers about the valuation of targeted assets. The price which acquirers pay targets for acquired intangible assets is often higher than their book value. The price premium paid by acquirers generates the difference between book value and market value of such intangible assets. This might increase the difficulty in the process of negotiating an acquisition price between acquirers and targets. Thus, the intangible asset in an accounting context encounters the difference in evaluation, while it in the IB context faces the difference in the transmission process. Both definitions share different perspectives of influence on M&A activity.

Based on the above arguments, although the high amount of intangible complementary assets will attract an increased volume of cross border M&A, these deals may not complete ultimately in consideration of the high integration cost or the unachievable consensus between both firms on the transaction price. Thus, hypothesis 5a is developed about intangible resource from target side factors below.

Hypothesis 5a: The higher the amount of intangible assets in a target firm, the lower the likelihood that a cross border M&A is completed.

From the aspect of acquirer, more research is required to investigate the impact of acquiring a firm's proprietary intangible assets and their transferability on acquisitions (Pan and Tse, 2000). Adopting a non-equity based corporation form will share some protective information with local partners, which could cultivate new competitors outside that specific local market (Brouthers, 2002). Therefore, Brouthers and Brouthers (2000) identify that firms with a high degree of technological capabilities prefer to choose an acquisition to protect their specific competences from potential foreign rivals. Hence, the high amount of intangible resource in an

acquirer firm usually facilitates the completion of an overseas takeover. The hypothesis 5b is specified about intangible resource from acquirer side factors below.

Hypothesis 5b: The higher the amount of intangible assets in an acquirer firm, the higher the likelihood that a cross border M&A is completed.

4.3 Data

4.3.1 Data Sources

In terms of sampling the data, this study employs cross border M&A data mainly from the Orbis and Zephyr databases published by Bureau van Dijk. Bureau van Dijk has a wide range of company information products that are co-published with many renowned information providers. Its product range includes databases of company information and business intelligence for individual countries, regions and the world. One of its global database, Orbis, combines information from around 100 sources and covers over 100 million companies. Another of its databases, Zephyr, is the most comprehensive database of deal information updated hourly. It contains information on M&A, IPO, private equity and venture capital deals and rumours. Compared to other M&A data sources like Thompson Financial Securities data, Zephyr has the advantage that there is no minimum deal value for a transaction to be included in the database.

In the first instance the cross border M&A deals are transactions only selected during the period from 2002 to 2011. Thus, the financial information of acquirers and targets is also in the ten years period. The selected period encompasses different economic tendencies including the US debt crisis and European solvency debt crisis. This period has not been analysed in prior studies. In addition, the cross border M&A deals are rumoured or completed among all industries and worldwide. Worldwide data have not been studied before compared with studies from other developed countries such as the US and European countries. Thus an analysis of worldwide M&A in this period makes it interesting and relevant for comparison.

According to the definition in Zephyr, the research selects the M&A deal with the criteria of at least £1 million or equivalent in deal value or at least two per cent of a stake acquisition. Regarding the actual deals, only M&A will be included as the objects of investigation. Consequently IPOs, Institutional buy-outs, joint ventures, demergers, minority stakes,

management buy-ins, management buy-outs, share buy-backs, etc. will be excluded from this study. The initial stake has to be a minority of the total stake and the deal has to increase the stake with more than 51 per cent to own the majority of the target firm and thereby controlling the newly purchased company. This is vital because a shift in the power of the target firm is an important reason for M&A (DePamphilis, 2009). Moreover, the use of sampling the rumoured but uncompleted deal data from whole M&A deals population rather than other non-M&A activities will generate a relevance. A completed M&A deal means that an acquirer obtains control of the target firm by acquiring a majority of target's shares, eventually leading to delisting of the target firm's stock (so partial and cleanup offers are excluded). A rumoured but uncompleted deal indicates that the acquirer's offer to acquire target shares does not lead to a real M&A deal completed in the end.

When using Zephyr and Orbis to derive relevant financial information, one is restricted according to the limitation of the databases used. Thus some of the deals are deleted because of information shortage. Problems of missing data cause a substantial reduction in the number of cases in the sample and so the observation's number was shortened from 19,685 to a sample of 4,241 matched acquirers and their respective targets. I have dropped the duplicate deals and all deals with country code of 'NL' because there is no information for these deals. This omission could influence the outcome of the analysis and should be criticised when evaluating the validity of the results and conclusions, especially if some deals are systematically removed from the sample, which is caused by lack of information. However, the sample size should be a random selection.

4.3.2 Independent Variable

The independent variables are chosen to proxy a number of attributes or dimensions of economic performance and financial position, including: profitability; cash flow; corporate leverage; intangible asset; firm size. The descriptions for all variables are listed below. In this research, gearing ratio is used to measure corporate leverage. The profitability is measured by profit margin. Total assets of firms are employed to measure firm size. The relative size variable is constructed in the model separately with absolute size variables and constitutes a comparable model. The relative size variable is calculated by dividing the total assets of the acquiring firm with the assets of the target, thus making a ratio for the relative size. In this research, several control variables will be used such as firm's listed status, GDP growth for each host country, cross border M&A type, year, and host country. A listed firm will be denoted by 1 and an

unlisted firm by 0. According to Dunning's (1977) OLI framework, the quality of foreign business environment is worthy of consideration (Malhotra et al., 2009). The location of targets and the economic growth rate are two motivations for multinationals to conduct M&As in overseas markets (Kohli & Mann，2012).

According to Markusen (1995), horizontal M&A and vertical M&A are driven by different motives, which are market-seeking and efficiency-seeking respectively. They may influence the decision of cross border M&A completion. Therefore, it is necessary to control the M&A type in the analysis of this research. The M&A type dummy includes conglomerate, vertical and horizontal M&A. Following Driffield et al. (2014), the upstream and downstream industries are defined in relation to the two-digit NACE industry code. Based on this category, vertical M&A is defined as target firms which belong to upstream industries and acquirer firms belong to downstream industries. Alternatively, target firms belong to downstream industries and acquirer firms belong to upstream industries. The M&A deals are categorised into horizontal takeovers if target and acquirer firms possess the same two-digit NACE industry code. Other M&A deals which are not categorised into either vertical or horizontal takeovers will be defined as conglomerate takeovers.

Table 4.1 The definitions of independent variables

Source from Orbis

4.3.3 Data Description

The distribution of population which includes 19,685[3] cross border M&A deals from 2002 to 2011 is listed in table 4.1. In these ten years, conglomerate M&A[4] account for a large proportion of total cross border M&A deals. There are 1,044 rumoured conglomerate deals and 11,095 completed conglomerate deals. The second largest number of M&A type is horizontal M&A which is consist of 798 rumoured deals and 6,155 completed deals. Vertical M&A is listed in the third place, which includes 52 rumoured deals and 541 completed deals. In terms of each M&A type, the volume of completed deals increases with years before 2007. Although the financial crisis made the volume of completed deals decrease in 2008 and 2009, the volume resumes increasing after 2009. It suggests that financial crisis in 2008 did influence the cross border M&A activities.

[3] The number of completed cross border M&A deals is 17,791 which is account for 90.38%, whereas, that of uncompleted rumours is 1,894 with proportion of 9.62%.

[4] Conglomerate M&A is one form of M&A process which deals happened between two companies in irrelevant industries respectively. The objective may be diversification of capital investment (DePamphilis, 2009).

Table 4.2 The distributions of cross border M&A types and deal status from 2002 to 2011

Cross border M&A types	Deal status	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total	%
Vertical	Uncompleted	3	5	1	3	7	4	10	7	7	5	52	8.8
	Completed	45	33	43	56	78	83	74	33	39	57	541	91.2
Horizontal	Uncompleted	41	62	66	94	78	92	92	93	88	92	798	11.5
	Completed	428	460	548	722	770	905	688	444	570	620	6155	88.5
Conglomerate	Uncompleted	44	86	74	103	77	91	127	136	157	149	1044	8.6
	Completed	660	742	909	1184	1373	1594	1390	842	1138	1263	11095	91.4

Source: Author's calculations from Orbis and Zephyr data set.

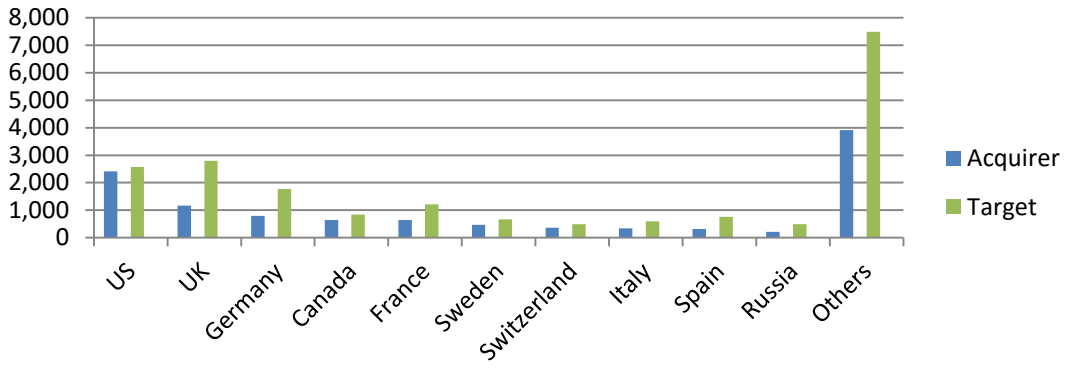
From table 4.2 and figure 4.1, during this decade, there are 11,280 acquirers and 19,685 targets in total from 164 countries across the world. The US is the biggest cross border M&A home country which conducts 2,418 international M&A attempts and accounts for 21.44% of total international deals. The second biggest takeover home country is the UK (10.32%) followed by Germany (7.06%), Canada (5.73%), France (5.70%), Sweden (4.13%), Switzerland (3.25%), Italy (2.99%), Spain (2.84%) and Russia (1.89%). As for the target side, the UK becomes the biggest cross border M&A host country which receives 2,798 bids and accounts for 14.21% of total international deals. The US is ranked as the second host country (13.08%). It is followed by Germany (8.98%), France (6.15%), Canada (4.29%), Spain (3.84%), Sweden (3.37%), Italy (3.03%), Russia (2.51%) and Switzerland (2.48%). The majority of involving firms is located in the North American area and West European area. Another 154 countries contribute 34.66% of acquirers and 38.06% of targets respectively. These firms mainly come from OECD countries, the enlarged EU area, East Asian area and Oceania area. Generally, it shows that the developed countries consist of main outward and inward FDI countries. Less developed countries primarily import capital from more developed countries. Most of cross border M&A activities take place in North American and Western European countries.

Table 4.3 The distributions of acquirer and target across main countries

	US	UK	Germany	Canada	France	Sweden	Switzerland	Italy	Spain	Russia	Others	Total
Acquirer	2,418	1,164	796	646	643	466	367	337	320	213	3910	11,280
Proportion	21.44%	10.32%	7.06%	5.73%	5.70%	4.13%	3.25%	2.99%	2.84%	1.89%	34.66%	100%
Target	2,575	2,798	1,768	844	1,210	663	489	596	755	495	7492	19,685
Proportion	13.08%	14.21%	8.98%	4.29%	6.15%	3.37%	2.48%	3.03%	3.84%	2.51%	38.06%	100%

Source: Author's calculations from Orbis and Zephyr data set.

Figure 4.1 The distributions of acquirer and target across main countries



Source from Orbis and Zephyr

Furthermore, this research also uses a dataset of GDP growth rate for each country, which is extracted from the International Country Risk Guide (ICRG) historical database. This is a wide selection of data from specific tables as published monthly in *International Country Risk Guide* from 1984 until the present, including all countries or their predecessors monitored by ICRG. These data include Political, Economic, Financial and Composite Risk Ratings, which are sets of data with the risk components used to calculate each rating and other sets with the actual monthly data variable used to calculate either the Economic Risk Rating or the Financial Risk Rating, as recorded contemporaneously for every country monitored by ICRG in each particular month.

4.4 Methods

4.4.1 Specification

4.4.1.1 The Likelihood Model in This Research

In order to identify the determinants of cross border M&A, a probit model will be employed because there are two parts of observations in the dependent variable. Due to the existence of a binary dependent variable which includes the rumoured then completed deal and the rumoured but uncompleted deal, the dependent variable (the probit) represents relative probability of a cross border M&A deal in the sample being completed or just rumoured. The independent variables as the potential determinant factors will be examined in these probit estimation models. The five hypotheses are tested by using these independent variables respectively. The estimation models will be examined with using below equations. The equation 4.1 will include all independent variables and control variables except for relative size variable. The equation 4.2 will examine all variables by replacing absolute size variables with relative size variable. They are listed as follow:

$$y_1(1/0)_{it} = \beta_0 + \beta_1 T_{it} + \beta_2 A_{it} + \beta_3 Listed_{it} + \beta_4 GDP_{it} + \beta_5 MAtype_{it} + v_t + v_c + \varepsilon_{it} \qquad (4.1)$$

where $y_1(1/0)_{it}$ is a binary variable, capturing the M&A's status, which takes value 1 if the M&A's status of testing firm is rumoured and completed, and takes value 0 if its M&A's status is rumoured but uncompleted. The main interest of this research is to identify what factors can make an M&A deal completed compared with the abundant analogous deal. The vector T_{it} captures a set of target's characteristics that have been found in the literature to be important in

explaining the likelihood of cross border M&A in general. These variables include following target firm characteristics observed in the acquisition event period: characteristic variables to capture profitability, the intangible resource and firm size. Similarly, the vector A_{it} captures a set of acquirer's characteristics such as profit margin, cash flow, gearing ratio, intangible asset and total asset. These variables are also observed in the acquisition event period to capture the acquirer's profitability, liquidity, corporate financial leverage, intangible resource and firm size.

$Listed_{it}$ includes another two control variables which capture whether targets or acquirers are listed companies or not. It is composed of the target's listed status and the acquirer's listed status. GDP_{it} is the GDP growth rate of the host country where the target firm is located in the relevant year. $MAtype_{it}$ is the control variable. It stands for the type of M&A which includes vertical, horizontal and conglomerate M&A. Finally, the error term is made up of a time-specific component (v_t), an encoded 2-digit country-specific component (v_c), and an idiosyncratic error term ε_{it}.

$$y_2(1/0)_{it} = \alpha_0 + \alpha_1 T_{it} + \alpha_2 A_{it} + \alpha_3 RSize_{it} + \alpha_4 Listed_{it}$$

$$+ \alpha_5 GDP_{it} + \alpha_6 MAtype_{it} + v_t + v_c + \varepsilon_{it} \qquad (4.2)$$

In the equation 4.2, the vector T_{it} and A_{it} will exclude the target's and acquirer's size variables. They are replaced with relative size variable ($RSize_{it}$). Other part of equation remains the same to the equation 4.1.

4.4.1.2 The Probit Regression

Proposed by Bliss (1934), in statistics, a probit model is a type of regression where the dependent variable can only take two values. Its name comes from probability + unit. The purpose of the model is to estimate the probability that an observation with particular characteristics will fall into a specific one of the categories. It is a popular specification for a binary response model. The probit model, which employs a probit link function, is often estimated by using the standard maximum likelihood procedure, such as estimation being call a probit regression.

Suppose response variable Y is binary, that is it can have only two possible outcomes which we will denote as 1 and 0. For example Y may represent presence/absence of a certain condition, success/failure of some device, answer yes/no on a survey, etc. We also have a vector of

regressors X, which are assumed to influence the outcome Y. Specifically, we assume that the model takes the form:

$$\Pr(Y = 1 \mid X) = \Phi(X'B), \quad (4.3)$$

where Pr denotes probability, and Φ is the Cumulative Distribution Function (CDF) of the standard normal distribution. The parameters β are typically estimated by maximum likelihood. It is possible to motivate the probit model as a latent variable model. Suppose there is an auxiliary random variable

$$Y^* = X'\beta + \varepsilon, \quad (4.4)$$

where $\varepsilon \sim N(0, 1)$. Then Y can be viewed as an indicator for whether this latent variable is positive:

$$Y = \begin{cases} 1 & \text{if } Y^* > 0 \text{ i.e. } -\varepsilon < X'\beta, \\ 0 & \text{otherwise.} \end{cases} \quad (4.5)$$

The use of the standard normal distribution causes no loss of generality compared with using an arbitrary mean and standard deviation because adding a fixed amount to the mean can be compensated by subtracting the same amount from the intercept, and multiplying the standard deviation by a fixed amount can be compensated by multiplying the weights by the same amount. To see that the two models are equivalent, note that:

$$\Pr(Y = 1 \mid X) = \Pr(Y^* > 0) = \Pr(X'\beta + \varepsilon > 0)$$

$$= \Pr(\varepsilon > -X'\beta)$$

$$= \Pr(\varepsilon < X'\beta) \quad \text{(by symmetry of the normal distribution)}$$

$$= \Phi(X'\beta) \quad (4.6)$$

4.4.1.3 Maximum Likelihood Method

Suppose data set $\{y_i, x_i\}_{i=1}^n$ contains *n* independent statistical units corresponding to the model above. Then their joint log-likelihood function is

$$\ln \mathcal{L}(\beta) = \sum_{i=1}^n (y_i \ln \Phi(x_i'\beta) + (1 - y_i) \ln(1 - \Phi(x_i'\beta))) \quad (4.7)$$

The estimator $\hat{\beta}$ which maximizes this function will be consistent, asymptotically normal and

efficient provided that E[*XX'*] exists and is not singular. It can be shown that this log-likelihood function is globally concave in β, and therefore standard numerical algorithms for optimisation will converge rapidly to the unique maximum. Asymptotic distribution for $\hat{\beta}$ is given by:

$$\sqrt{n}(\hat{\beta} - \beta) \xrightarrow{d} \mathcal{N}(0, \Omega^{-1}), \qquad (4.8)$$

Where

$$\Omega = E\left[\frac{\varphi^2(x_i'\beta)}{\Phi(x_i'\beta)(1-\Phi(x_i'\beta)}XX'\right], \qquad (4.9)$$

$$\widehat{\Omega} = \frac{1}{n}\sum_{i=1}^{n}\frac{\varphi^2(x_i'\hat{\beta})}{\Phi(x_i'\hat{\beta})(1-\Phi(x_i'\hat{\beta})}x_i x_i' \qquad (4.10)$$

and φ = Φ' is the Probability Density Function (PDF) of standard normal distribution.

4.4.2 The Use of M&A Rumour in Dependent Variable

In this research, an M&A likelihood model is constructed to detect the determinants of a cross border M&A being completed, using the vector of the hypothesized influence factors. In order to understand the effect of determinants, it is necessary to collect a sample of reference group corresponding to M&A deals. The data from rumoured but uncompleted deals provides comparable sense in identifying the similarity of in range of completed deals characteristics. It is not predictable which firms will become targets or acquirers without considering the uncompleted M&A in the counterfactual situation. Therefore, it is important to construct a consistent estimate for the characteristics of firms had they not been involved in M&A. The characteristics of the non-acquirers or non-targets used in previous literature do not offer a good estimate of the counterfactual in non-experimental settings. This is because firms select themselves into the different groups based on characteristics that might also affect the measured variables.

Whether or not the cross border M&A is completed comprises a comparison between the actual international takeover and the situation had the takeover not taken place after experiencing takeover rumours. As a potential international M&A, rumoured but uncompleted M&A deals naturally provide a feature of counterfactual population, which can overcome the potential selective bias. In addition, the characteristics of targets or acquirers under the rumour are

independent of that in the actual completed M&A, which is satisfied with the conditional independence assumption (ref. Chapter 3). Furthermore, the use of takeover rumour data overcomes the limitation of propensity matching techniques discussed in Chapter 3. Therefore, this study employs directly rumoured data as control group rather than propensity matching techniques or other sample matching techniques.

To my knowledge, the rumoured deals have not been found to apply to be a control group in the cross border M&A research. It is also not found that previous researchers choose firm's information to compose the control group from rumoured M&A deals. Therefore, the use of firms from takeover rumours as a control group and the construction of takeover rumours and actual takeovers in the dependent variable will contribute to the literatures on M&A.

4.5 Result

4.5.1 Cross Border M&A Likelihood Probit Models with Absolute Size

Based on the hypotheses discussed in section 2, this section reports the first version of the probit model with using the absolute firm size variables. The sample information for this probit model is summarised in the table below. From this table, all variables show positive mean value in the sample of 4,150 cross border M&A although some of them have negative values for specific observations. Amongst them, some variables such as target's intangible assets and total assets, acquirer's cash flow, intangible assets and total assets have the large standard deviations. This means that these variables spread out their observation values widely.

Table 4.4 Descriptive statistics for the model with absolute firm size

	Variable	Obs	Mean	Std. Dev.	Min	Max
	completed_MA	4150	0.8698795	0.3364765	0	1
Target	Profit Margin	4150	3.896728	21.36202	-98.25	100
	Intangible Asset	4150	10715.55	10365.67	29	31327
	Total Asset	4150	789732.9	6174343	0	2.18E+08
	Listed	4150	0.0946988	0.2928337	0	1
Acquirer	Profit Margin	4150	8.189822	14.54219	-97.99	95.06
	Cash Flow	4150	1143031	3524237	-2.10E+07	5.09E+07
	Gearing Ratio	4150	105.6957	118.2492	0	997.68
	Intangible Asset	4150	29524.83	19345.29	163	63487
	Total Asset	4150	1.21E+07	3.75E+07	113	7.96E+08
	Listed	4150	0.6855422	0.4643555	0	1
	GDP_growth	4150	7.339964	1.773262	0.5	10
	MAtype	4150	1.838554	0.9645227	1	3
	year	4150	2006.3	2.268562	2002	2011
	Tcountry_id	4150	71.94145	38.86765	8	162

The descriptive statistics is analysed by using the full model with control variables.

The parameter estimates of two probit M&A likelihood models are presented in table 4.5. Model 1 includes nine independent variables in addition to a constant term. These independent variables correspond to the five cross border M&A likelihood hypotheses discussed. Model 2 is a re-estimation of model 1 with the inclusion of control variables. The control variables control acquirer's listed status, target's listed status, GDP growth for each host country, M&A types, year and country. Table 4.5 reports the associated marginal effects for independent variables, the Pseudo R-squared[5] and log likelihood statistic for each version of the model. The numbers of observations for the two models are listed in table 4.5.

[5] Pseudo R-squared provides an indication of the overall explanatory power of the model and the likelihood ratio statistic tests it statistical significance. The Pseudo R-squared index for the four models ranges between 5.98% and 20.29%. The associated likelihood ratio statistic, which is asymptotically chi-square distributed, is statistically significant for all four models. This suggests that the models offer a statistical explanation of a completed cross border M&A probability.

Table 4.5 Results of cross border M&A likelihood probit models with absolute size

	Variables	Model 1					model 2				
	Completed_MA	Coef.	Std. Err.	dy/dx	Std. Err.	Sig.	Coef.	Std. Err.	dy/dx	Std. Err.	Sig.
Target	Profit Margin	-1.04E-03	1.20E-03	-2.07E-04	2.40E-04		-7.02E-05	1.35E-03	-1.12E-05	2.17E-04	
	Intangible Asset	-8.03E-06	2.42E-06	-1.60E-06	0.00E+00	***	-6.54E-06	2.83E-06	-1.05E-06	4.54E-07	**
	Total Asset	-7.65E-09	1.81E-09	-1.52E-09	0.00E+00	***	-2.31E-08	6.34E-09	-3.70E-09	1.02E-09	***
	Listed						-1.29E+00	9.30E-02	-2.07E-01	1.43E-02	***
Acquirer	Profit Margin	-6.96E-03	1.85E-03	-1.38E-03	3.70E-04	***	-5.07E-03	2.03E-03	-8.12E-04	3.25E-04	**
	Cash Flow	-6.83E-08	1.09E-08	-1.36E-08	0.00E+00	***	-3.99E-08	1.32E-08	-6.38E-09	2.11E-09	***
	Gearing Ratio	-3.27E-04	2.11E-04	-6.49E-05	4.00E-05		-2.51E-04	2.43E-04	-4.02E-05	3.90E-05	
	Intangible Asset	9.69E-07	1.30E-06	1.92E-07	0.00E+00		3.22E-07	1.47E-06	5.15E-08	2.35E-07	
	Total Asset	6.37E-10	9.03E-10	1.26E-10	0.00E+00		1.55E-10	1.19E-09	2.48E-11	1.91E-10	
	Listed						-9.56E-02	6.67E-02	-1.53E-02	1.07E-02	
	Relative Size										
	GDP Growth	-8.35E-03	1.39E-02	-1.66E-03	2.75E-03		6.71E-02	3.45E-02	1.07E-02	5.53E-03	*
	Vertical						-9.85E-02	1.41E-01	-1.58E-02	2.36E-02	
	Horizontal						-1.06E-01	5.98E-02	-1.71E-02	9.75E-03	*
	Year	uncontrolled					controlled				
	Country_id	uncontrolled					controlled				
	Constant term	1.47E+00	1.20E-01			***	8.24E-01	4.06E-01			***
	Pseudo R^2	0.0632					0.2366				
	LR chi^2	204.45				***	759.08				***
	No. of Obs.	4224					4150				

***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

In model 1, the target's intangible asset, target's total asset, acquirer's profitability and acquirer's cash flow are statistically significant and have negative signs. The coefficient sign of variable target's intangible asset is significant and negative which is different from the previous evidence but is consistent with hypothesis 5a. This implies that the target with low level of intangible assets will increase the likelihood of cross border M&A completions. It could be explained that the competitive advantage based on a complex technology will reduce the likelihood of cross border M&A completions due to the high transfer cost. Additionally, high proportion of intangible assets, to some extent, brings in an overvalued firm's value. Therefore, targets sometimes ask for higher takeover prices resulting in the deals not being completed. The coefficient sign of target's total asset is consistent with hypothesis 1a, which means that a smaller firm will increase the chance of a cross border M&A being completed. Besides, smaller firms may be more likely to be chosen as targets.

Moreover, the finding for other significant variables of the acquirer is also in line with hypotheses 2b and 3 but is different from the previous evidence. These significant variables means that the acquiring firm with high profitability and sufficient cash flow will reduce the chance of a cross border M&A completion after experiencing a takeover rumour. Although high cash flow is argued to increase the possibility of potential M&A deals because managers can afford to buy more firms, it doesn't mean all of them become completed ones. The high amount of free cash flow gives managers more discretionary power and encourages management hubris. This results in the deals not easy to be completed successfully because acquirers carelessly choose the investment projects. This finding is different from the previous literature which argues that the more cash flow the more M&A. In addition, the result about the profitability from the acquirer side is also different from previous literature which argues that the acquirer with high profitability will be more likely to initiate the takeovers. The finding could be explained that acquirers with high earning ability will cautiously choose targets to acquire or merge. They prefer to maintain their existing superiority in profitability and try to avoid the risk of losing profit when acquiring a new firm. Besides, the large integration cost makes acquirers unprofitable to some extent. Thus, high profitability reduces the chance of an M&A deal completion.

Nevertheless, the coefficient of variables target's profit margin, acquirer's gearing ratio, intangible asset and total asset are statistically insignificant although they are in line with the expected coefficient's sign. The coefficient of variable GDP growth for host country is

statistically insignificant. These statistically insignificant variables indicate that the target's profitability, acquirer's leverage, intangible resource and absolute size measure, and the growth opportunity of the host country are lack of sufficient evidence in determining the cross border M&A likelihood.

When re-estimating the same specification to model 1 with adding the control variables (i.e. Listed status, M&A type, year and country dummies), model 2 reports the similar results. The coefficients of variable target's intangible asset and acquirer's profit margin become less significant. Apart from these differences, the results from model 1 remain the same and robust. As for the control variables, the coefficient of target listed status is negative and statistically significant. This indicates that the unlisted firms in the sample will increase the likelihood of cross border M&A completions. In terms of listed status, the listed firm is usually a large corporation in market value and is under surveillance by the stock exchange regulators. Large firms are not easily integrated and usually involve complicated transaction procedures. Furthermore, the requirement of financial disclosure in the stock exchange institutes reduces the discretionary power of managers. Thus, listed firms are not easy to complete an M&A deal. Together with considering the control of country variable, the variable of GDP growth becomes a significant and positive sign. This means that the healthy economic environment and good market opportunity in the host country will encourage the completion of cross border M&A. The firm's listed status variables and the control for host country interfere with the significance of a firm's intangible resource, profitability and GDP growth in affecting the completion of cross border M&A after experiencing takeover rumours.

As for the control variable of cross border M&A type, the coefficient of horizontal M&A is negative with significance at the 10 per cent level. It means that horizontal international M&A deals are less likely to be completed compared with the international vertical M&A. Horizontal M&A are usually consistent with diversification of corporate strategy under certain relatedness of corporate operation in order to seek for risk diversification and economy of scope. Furthermore, horizontal M&A is often involved in acquiring the firms with similar or homogeneous products. This provides the acquirer firm with new product markets or enlarged economy of scale, but this also makes the duplicated investments and resources redundant. Therefore, firms may more carefully consider horizontal takeovers. Especially, in consideration of the high cost due to job cut in the workforce and repeated construction, this kind of international M&A has less chance to be completed eventually. In model 2, year and country

variables are also controlled. These findings all imply that the intangible resources will discourage the international takeovers rather than motivate them, and the cross border M&A are oriented by efficiency seeking rather than technological sourcing.

4.5.2 Cross border M&A likelihood probit models with relative size

This section reports the probit model with using the relative firm size variables. The sample information for this probit model is summarised in the table below. Similar to the model with absolute firm size, all variables show positive mean value in the sample of 4,149 cross border M&A and some of them have negative values for specific observations. Amongst these, the wide spread exists in such variables as target's intangible assets, acquirer's cash flow and intangible assets.

Table 4.6 Descriptive statistics for the model with relative firm size

	Variable	Obs	Mean	Std. Dev.	Min	Max
	completed_MA	4149	0.8698482	0.336511	0	1
Target	Profit Margin	4149	3.903492	21.36015	-98.25	100
	Intangible Asset	4149	10718.02	10365.69	29	31327
	Listed	4149	0.0947216	0.2928653	0	1
Acquirer	Profit Margin	4149	8.193666	14.54184	-97.99	95.06
	Cash Flow	4149	1143345	3524604	-2.10E+07	5.09E+07
	Gearing Ratio	4149	105.7131	118.2582	0	997.68
	Intangible Asset	4149	29531.14	19343.35	163	63487
	Listed	4149	0.6857074	0.4642895	0	1
	Relative Size	4149	3.853854	2.309013	-7.985165	16.48524
	GDP_growth	4149	7.340157	1.773432	0.5	10
	MAtype	4149	1.838756	0.964551	1	3
	year	4149	2006.302	2.267852	2002	2011
	Tcountry_id	4149	71.94095	38.87232	8	162

The descriptive statistics is analysed by using the full model with control variables.

The parameter estimates of two probit M&A likelihood models are presented in table 4.7. Model 1 includes eight independent variables in addition to a constant term. These independent variables correspond to the independent variables in table 4.5 except for the firm size measure. This model uses a relative size measure while the models in table 4.5 use an absolute size measure. Model 2 is a re-estimation of model 1 with including control variables such as acquirer's listed status, target's listed status, M&A types, year and country. Similar to table 4.5, table 4.7 reports the marginal effects for independent variables, Pseudo R-squared and log likelihood statistic for each model, and numbers of observations for the two models.

Table 4.7 Results of probit cross border M&A likelihood models with relative size

	Variables	model 1					model 2				
	Completed_MA	Coef.	Std. Err.	dy/dx	Std. Err.	Sig.	Coef.	Std. Err.	dy/dx	Std. Err.	Sig.
Target	Profit Margin	-8.06E-04	1.22E-03	-1.55E-04	2.30E-04		-2.14E-04	1.36E-03	-3.43E-05	2.17E-04	
	Intangible Asset	-5.19E-06	2.47E-06	-1.00E-06	0.00E+00	**	-5.31E-06	2.87E-06	-8.50E-07	4.59E-07	*
	Listed						-1.31E+00	9.19E-02	-2.09E-01	1.40E-02	***
Acquirer	Profit Margin	-7.42E-03	1.82E-03	-1.43E-03	3.50E-04	***	-5.40E-03	2.01E-03	-8.64E-04	3.23E-04	***
	Cash Flow	-7.89E-08	6.42E-09	-1.52E-08	0.00E+00	***	-5.24E-08	7.28E-09	-8.39E-09	1.16E-09	***
	Gearing Ratio	-4.19E-04	2.05E-04	-8.09E-05	4.00E-05	**	-3.62E-04	2.36E-04	-5.79E-05	3.78E-05	
	Intangible Asset	4.95E-07	1.32E-06	9.56E-08	0.00E+00		6.57E-08	1.47E-06	1.05E-08	2.35E-07	
	Listed						-1.74E-01	6.96E-02	-2.78E-02	1.12E-02	**
	Relative Size	1.05E-01	1.14E-02	2.02E-02	2.18E-03	***	5.49E-02	1.39E-02	8.79E-03	2.22E-03	***
	GDP Growth	-1.07E-02	1.41E-02	-2.06E-03	2.71E-03		7.03E-02	3.46E-02	1.13E-02	5.54E-03	**
	Vertical						-9.02E-02	1.41E-01	-1.45E-02	2.35E-02	
	Horizontal						-1.02E-01	5.99E-02	-1.65E-02	9.75E-03	*
	Year	uncontrolled					controlled				
	Country_id	uncontrolled					controlled				
	Constant term	1.12E+00	1.27E-01			***	6.72E-01	4.10E-01			
	Pseudo R^2	0.0846					0.2362				
	LR chi^2	273.98				***	758.03				***
	No. of Obs.	4223					4149				

***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

The models in table 4.5 use the absolute value of acquirer and target's size measures, while the models in table 4.7 employ the logarithm of relative size measure between acquirer and target. In models 1 and 2 of table 4.7, excluding the absolute size measures, the relative size measure exhibits high significance and is consistent with the positive expected sign. The result shows that relative size of acquirer and target has more influential power than their absolute sizes in explaining the completion of a rumoured cross border M&A deal. It suggests that the larger the extent of relative difference between acquirer and target is, the more likely the cross border M&A deal will be completed. In other words, large firms usually acquire small ones. This is consistent with the expected sign of hypothesis.

Another difference in the probit model of table 4.7 is the negative coefficient of acquirer's gearing ratio becomes statistically significant in model 1, which is consistent with hypothesis 4. It suggests that high level of corporate financial leverage will reduce the chance of cross border M&A being completed after experiencing takeover rumours. It is also suggested that when the firm size is compared, the acquirer's financial leverage shows more significance in its debt default effect. It can be explained that high level of corporate operation risk makes the firm itself less confident in acquiring other firms. Moreover, the high level of debt issue reduces the managers' discretionary power in conducting M&A. Thus, the potential insolvency effect may overweigh the function of LBOs.

Additionally, the listed status of acquirer and target firms has a significant and negative sign in model 2. This has a similar explanation with the listed target firms in model 2 of table 4.5, which is that the potential deals involving listed target firms are less likely to complete due to sophisticated integration progress and strict surveillance of regulators. Moreover, the listed firm is usually required to disclose more M&A proposal information than unlisted ones. This requirement reduces the discretionary power of managers to attempt all possible M&A projects. Thus, listed acquirer firms also do not easily complete an M&A deal. Apart from these above differences, the coefficients of all other variables are consistent with those in models of table 4.5 respectively, which retains robustness.

4.5.3 The goodness of fit for both absolute size and relative size models

The output of probit regression can be diagnosed by the log likelihood chi-squared (LR χ^2) and pseudo R-squared (Pseudo R^2) for the model. These measures provide a general gauge on how

the model fits the data. The log likelihood chi-squared (LR χ^2) is to test whether the model as a whole is statistically significant. It is twice the difference between the log likelihood of the current model and the log likelihood of the intercept-only model. From tables 4.5 and 4.7, the models with controlling year and country reports higher and significant LR χ^2 values than those of models without controlling year and country. A pseudo R-squared is in slightly different favour, but captures more or less the same thing in that it is the proportion of change in terms of likelihood. Similarly, the controlled models show higher Pseudo R^2 than those of uncontrolled models. These all suggest that the controlled models are a better fit than uncontrolled models.

However, when considering which model can explain better the likelihood of cross border M&A completion between the model with absolute firm size and that with relative size, LR χ^2 and Pseudo R^2 are unable to show the comparison of model fit. The probit model with relative firm size reports lower values in LR χ^2 (758.03) and Pseudo R^2 (0.2362) than those (759.08 and 0.2466 respectively) of absolute size model when controlling year and country, but the situation becomes opposite for uncontrolled models, which is that the relative size model has higher values in LR χ^2 (273.98) and Pseudo R^2 (0.0846) than those (204.45 and 0.0632) of absolute size model.

To compare the goodness-of-fit for the both above models, this research uses AIC (Akaike Information Criterion) and BIC (Bayesian Information Criterion) to test model fit. Tables 4.8 and 4.9 report measures of fit for probit of 'completed_MA' without and with control variables respectively. In both tables, the saved probit model is the one with relative firm size, while the current probit model is the one with absolute firm size.

Table 4.8 Measures of Fit for probit of 'completed_MA' without control variables

	Current	Saved	Difference
Model:	probit	probit	
N:	4149	4149	0
Log-Lik Intercept Only:	-1604.316	-1604.316	0.000
Log-Lik Full Model:	-1224.88	-1225.302	0.422
D:	2449.760(4068)	2450.605(4048)	-0.844(20)
LR:	758.871(77)	758.026(76)	0.844(1)
Prob > LR:	0.000	0.000	0.000
McFadden's R2:	0.237	0.236	0.000
McFadden's Adj R2:	0.186	0.173	0.013
Maximum Likelihood R2	0.167	0.167	0.000

Cragg & Uhler's R2	0.310	0.310	0.000
McKelvey and Zavoina's R2:	0.300	0.293	0.007
Efron's R2:	0.250	0.245	0.006
Variance of y*:	1.429	1.415	0.014
Variance of error:	1.000	1.000	0.000
Count R2:	0.892	0.890	0.002
Adj Count R2:	0.169	0.156	0.013
AIC:	0.629	0.639	-0.010
AIC*n:	2611.760	2652.605	-40.844
BIC:	-31439.212	-31271.756	-167.457
BIC':	-117.413	-124.899	7.486

Difference of 7.486 in BIC' provides strong support for saved model.

By using the same sample of cross border M&A, table 4.8 provides strong support for saved model (relative size model) in those with controlling year and country.

Table 4.9 Measures of Fit for probit of ‘completed_MA’ with control variables

	Current	Saved	Difference
Model:	probit	probit	
N:	4223	4223	0
Log-Lik Intercept Only:	-1618.372	-1618.372	0.000
Log-Lik Full Model:	-1516.216	-1481.382	-34.834
D:	3032.432(4213)	2962.764(4214)	69.668(-1)
LR:	204.312(9)	273.980(8)	-69.668(1)
Prob > LR:	0.000	0.000	0.000
McFadden's R2:	0.063	0.085	-0.022
McFadden's Adj R2:	0.057	0.079	-0.022
Maximum Likelihood R2	0.047	0.063	-0.016
Cragg & Uhler's R2	0.088	0.117	-0.029
McKelvey and Zavoina's R2:	0.086	0.126	-0.040
Efron's R2:	0.062	0.083	-0.021
Variance of y*:	1.094	1.144	-0.050
Variance of error:	1.000	1.000	0.000
Count R2:	0.873	0.873	-0.000
Adj Count R2:	0.009	0.013	-0.004
AIC:	0.723	0.706	0.017
AIC*n:	3052.432	2980.764	71.668
BIC:	-32138.961	-32216.976	78.016
BIC':	-129.178	-207.193	78.016

Difference of 78.016 in BIC' provides very strong support for saved model.

Table 4.9 reports very strong support for saved models (relative size models) in those without controlling year and country. Therefore, based on above diagnostics, the relative firm size model with controlling year and country has best explanatory power for the likelihood of

international takeover completion. Actually, table 4.5 shows that only small firms increase the likelihood of M&A completions. However, there is no unique criterion to define a small firm. Comparing with the absolute firm size measure, the relative firm size provides the comparability between acquirers and targets. It can facilitate researchers easily to identify effects of small firms or large firms.

Generally, those market efficiency variables show significant and negative results and are associated with rumoured but not completed deals. This may suggest a bias in the previous results, in which the firms are strongly more likely to consider these market efficiency factors in considering international M&A attempts. However, these factors appear to be unrelated to the completion of M&A; the evidence from this research also suggests that strategic resources impede completion of takeovers rather than cause them. Therefore, overall results suggest that cross border M&A are the efficiency seeking activities.

4.6 Conclusion

A number of studies have developed statistical models to either predict takeover targets or investigate the influence factors of M&A. Some factors are identified due to their influence on M&A activity such as firm size, profitability, liquidity, corporate financial leverage level and intangible assets from the firm level. In the previous literature, some factors such as profitability, liquidity, corporate financial leverage level and intangible assets are mainly found to be positively related to M&A activities, while others such as firm size have a negative relationship. There is also mixed empirical evidence for these factors from the previous research. In spite of the mixed influence of these factors, previous research only focuses on the factors which induce the M&A activity. Nevertheless, it is unanswered that what factors determine an M&A deal carry out and complete finally.

This study employs the rumoured but uncompleted and completed cross border M&A deals to create a binary probit model which is new to takeover prediction literature. The use of rumoured but uncompleted M&A deals will identify the deals which satisfy the conditions of M&A but do not exist in the end. This composes a comparison group which provides the similarity in range of completed deals characteristics. This control group will facilitate to test what factors may influence the completion of M&A. The firm characteristics of both target and acquirer are argued to be important in the M&A decisions research. Thus, with using both target's and acquirer's firm-level information from 2002 to 2011, the above mentioned factors have been

examined to investigate the determinants of making a rumoured cross border M&A deal completed.

By using the above stated methods, this research extended the existing empirical evidence about rumoured deals in the field of cross border M&A and exploited the likelihood of M&A from a deal perspective rather than predicting a likely target. This leads to different conclusions from the previous literature in terms of target's intangible resource, acquirer's profitability and liquidity. In this research, the large amount of target's intangible asset, sufficient acquirer's cash flow, and high acquirer's profitability are found to decrease the likelihood of completed takeover, which is inconsistent with the previous evidence. In other words, the acquirer's liquidity, its profitability and target's intangible asset are regarded as an obstruction to the completion of cross border M&A. More specifically, firstly, this research argues that the acquirers with high profitability are more likely to initiate the cross border M&A, but these deals are less likely to be completed successfully due to the potential managerial resistance. Secondly, according to free cash flow (FCF) hypothesis in the agency cost literature, sufficient cash flow makes managers attempt more potential M&A activities. However, these M&A deals are more likely to be opposed by shareholders and disapproved by boards because these deals may not be carefully selected due to managerial discretion. Accordingly, they are less likely to be completed in the end. Thirdly, based on the framework of TCE and RBV, acquirers are interested in acquiring intangible assets of targets, which will attract managements to attempt large number of cross border M&A. However, the information asymmetry between targets and acquirers will directly cause both managements to evaluate their assets differently, which indirectly increases transaction costs. Therefore, these deals may not complete ultimately in consideration of the high transaction costs in integration or the unachievable consensus between both firms on the transaction price.

Further, this research identified not only the impacts of target firm's information but also that of acquirer firm's information on cross border M&A activities. The firm's information from the acquirer side provided the takeover likelihood with a new insight. Some acquirer's information such as profitability, liquidity and financial leverage showed significance in explaining the likelihood of completed deals. For example, the acquirer's financial leverage is found to impede the completion of international takeovers because it is anticipated that the insolvency factor will weigh more than the influence of LBOs.

Due to the mixed evidence in previous literature about the firm size, this research also utilised

the relative size measure to detect the determinants of completed M&A in order to check the robustness about firm size factor. It is found that the small target's absolute size and the large relative size of acquirer are shown to increase the likelihood of completed M&A. Besides, the listed status is also proved to significantly influence the completion of a rumoured cross border M&A deal. Compared with the unlisted firms, listed firms are less likely to complete the cross border M&A due to the high integration cost and rigorous regulation in the stock exchange market. They are also consistent with the transaction cost theory. Based on the evidence found, that the rumoured cross border M&A are completed is not because of technology (e.g. intangible assets are a negative sign) or acquiring profitable firms. There might be a reason about market access, and the GDP growth for each target firm in the host country are found to capture the market opportunity and show the increase in completion rate of international M&A.

This research found that acquirer's cash flow, its profitability, target's intangible asset and absolute size measure, the relative size of acquirer over target, the listed status of both involving firms and GDP growth for the host country are important determinants of international takeover completion, while the acquirer's financial leverage is an unstable influence factor on international takeover likelihood. Furthermore, comparing with vertical M&A, horizontal deals will be less likely to complete in the overseas market in consideration of the job cut and duplicated construction. This is also in line with transaction cost theory. Therefore, overall findings suggest that the cross border M&A are the efficiency-seeking activity rather than resource-seeking ones.

There are some implications to the future study. First, in discussing the influence of target profitability on the likelihood of cross border M&A, it has not found a significant result. It is worthy of investigating further whether multinational corporation would like to acquire high profit firms or low profit ones. Second, future researchers could exploit the impacts of target's liquidity and leverage on likelihood of completed overseas takeovers. Further study could check the consistency of results with other indicators in measuring size and profitability such as employee numbers and return of capital employed. Third, a firm's intangible asset is sometimes indistinct. The intangible asset can be specified as technological ability, good will, brand value, marketing channel, etc. These specific aspects could have different impacts on takeover productivity. The future studies may investigate the takeover productivity by differentiating intangible asset from these aspects.

The aforementioned motives in the literature provide rationales to support cross border M&A

activities. However, given the implications from the findings in this chapter, it is suggested that the managerial discretion from agency problem, the incautiousness of managements and high level of intangible assets in the target will impede the completion of international M&A. Since it is understood what factors motivate the cross border M&A, the next step of research will focus on investigating the performance of international M&A. The performance in terms of firm's productivity and profitability are examined as internal returns and external returns respectively. The next chapter will continue the empirical work to examine the market efficiency effect of cross border M&A from the aspect of firm's productivity.

Chapter Five: The Impact of Cross Border M&A on Firm-Level Productivity

5.1 Introduction

In the previous chapter, the determinants of cross border M&A completions were examined. It employed a probit M&A likelihood model to identify the motives for international takeovers. Several factors such as firm's profitability, liquidity, intangible resources, firm size and economic growth in the host country were identified which can significantly influence the completion of cross border M&A. The previous chapter concludes that the international M&A completions are underpinned by the efficiency-seeking motive. This chapter continues the empirical work to investigate the impact of cross border M&A on firm performance in terms of both TFP and labour productivity. As an indicator of firm performance, this chapter examines the post-acquisition productivity level for both targets and acquirers and the influence factors to productivity at the firm level.

Productivity gaps between foreign-owned firms and domestic firms have been widely observed and extensively investigated in the international industrial organisation (IO) literature, and ample empirical evidence on the effects of M&A on performance from the aspect of productivity has been documented (Conyon et al., 2002; Harris and Robinson, 2002; Girma, 2005; Girma et al., 2006; Fukao et al., 2006; Salis, 2008). Cross border M&A implying an ownership change from domestic to foreign owners offers an appropriate framework to isolate effects of foreign ownership (Bellak, 2004). However, existing empirical evidence on the causal link between international M&A and firm's productivity is inconclusive. While a number of studies have found positive effects of cross border M&A on firm's productivity (Lichtenberg and Siegel, 1987, for the US; Conyon et al, 2002, for the UK; Arnold and Javorcik, 2005, for Indonesia; Bertrand and Zitouna, 2008, in the case of France), other research has found that target firms do not gain any benefit from foreign ownership (Benfratello and Sembenelli, 2002; Harris and Robinson, 2002, for the UK; Barba-Navaretti and Venables, 2004; Girma and Gorg, 2007). Therefore, this chapter will investigate the impact of cross border M&A on firm's productivity as well as the factors determining this effect. Furthermore, existing empirical evidence on the effects of cross-border M&A is mostly limited to target firms, while little is known about the effects on the acquiring firms. This research will assess the impacts of M&A from aspects of both acquirers and targets.

Dunning's (1988) internalisation theory stresses that firms tend to expand themselves into other markets in order to enlarge the sales and market shares. The success of this type of expansion depends on firm's advantages such as technology, organisational assets, and brand names. Large empirical evidence shows that foreign-owned firms are more productive than domestic firms (Doms and Jensen, 1998 for the US; Driffield, 1997; Girma and Gorg, 2007; Griffith and Simpson, 2001 for the UK; De Backer and Sleuwaegen, 2002, in the case of Belgium; Pfaffermayer and Bellak, 2002, in the case of Austria; Ruane and Ugur, 2004, for Ireland). Economists and policy makers incline to presume that large endowments of intangible assets make foreign-owned firms possess an advantage over domestic firms, because they can compensate for a lack of local information and experience. Nevertheless, domestic production activities of either acquirers or targets may be substituted by similar investments abroad (Stiebale, 2013). Such substitution will affect the productivity of acquirers and targets. Thus, this study will examine the performance on the transfer of intangible advantages from acquirers to targets through the market-seeking M&A.

From another aspect, due to the complexity and diversity of new high-technology products and processes, firms cannot merely depend on their internal R&D to maintain competitiveness (Rindfleisch and Moorman, 2001). Some desired technological capabilities and knowledge are possessed by other firms which are even located in different industries and countries. Hence, it is increasingly important for firms to exploit external technological opportunities and knowledge sources so that they can complement the shortage of internal R&D efforts (Veugelers, 1997; Veugelers and Cassiman, 1999; Hargadon, 2002; Chesbrough, 2003; Nicholls-Nixon and Woo, 2003; Lane and Probert, 2007; Parmigiani, 2007). Besides, it is argued that obtaining the complementary assets and technology is one of objectives of cross border M&A (Norback and Persson, 2008). Therefore, M&A are increasingly regarded as a strategic instrument for obtaining the external intangible resource, e.g. technological knowledge (Villalonga and McGahan, 2005). With these external sources, incumbent firms could compensate for their technological productivity or expiring patents (Danzon et al., 2004; Higgins and Rodriguez, 2006). From the home countries' view, cross-border M&A enables the transfer of knowledge from abroad which may reinforce domestic technological capabilities. However, from the host countries' view, domestic firms in knowledge-intensive industries may be protected from foreign acquisitions by policy makers (Stiebale, 2013). Thus, it is questioned for acquirers to effectively exploit the desired intangible assets. This study will assess the performance on the acquisition of complementary resources from targets through the strategic

asset-seeking M&A.

In order to achieve the above objectives, this research will divide cross border M&A deals into two subsamples, which are deals where acquirers have more intangible assets than targets and deals where acquirers have less intangible assets than targets. The two subsamples represent the market-seeking expansion and the strategic asset-seeking expansion respectively.

The use of the rumoured M&A as a control group can address the sample selection issue when considering pre-acquisition performance in the M&A. Some foreign firms will perform better than domestic firms in the takeovers due to their possession of some firm-specific advantages. As a potential takeover which has firms without ownership change, the abandoned M&A rumour will be used to construct a control group for assessing the post-M&A performance. This research will adopt the approach of Levinsohn and Petrin (2003) to generate the TFP for the firm's productivity measure. It also exploits the potential channel function of M&A in shaping the post-acquisition productivity level. The labour productivity will be employed as the alternative firm's productivity measure for the robustness check.

This chapter is organized as follows: section 5.2 reviews previous theoretical literature and empirical evidence. Section 5.3 provides a description of the data and empirical model. Results of the empirical analysis and discussion are presented in section 5.4. Section 5.5 concludes.

5.2 Theoretical Background

5.2.1 Cross Border M&A and Firm's productivity

The performance gap identified by foreign M&A (rather than foreign ownership in general) has received much attention. It is necessary to assess the effect of pre- and post-foreign M&A on firm performance. According to Harris (2009), it is suggested by studies that the international M&A are found to be affected by the pre-acquisition performance of firms, such as productivity, return on assets/shares, managerial performance, and growth potential, as well as industry-specific characteristics. With respect to the pre-M&A productivity of the domestic target, foreign acquirers could select two alternative types of targets which are unproductive firms and productive firms. Furthermore, Nocke and Yeaple (2007) indicate that foreign targets are acquired by either the higher or the lower productive firms. Besides the association between pre- and post-acquisition performance by firms, either management discipline hypothesis or

corporate efficiency hypothesis also shows that other factors may influence post-acquisition productivity. First, the disciplining effect of takeovers makes the acquired firm's management improve their efficiency. Second, both the acquired and acquiring firms benefit from the synergy/restructuring effect by exploiting the firm-specific assets and networks of new parents or subsidiary firms, thus achieve additional efficiency gains (Bellak and Pfaffermayr, 2002).

According to Caves (1989), one explanation of maximising M&A's value is based on managerial efficiency. Hiring managers to ensure they gain maximum value from the firm's resources is regarded as an agency problem for corporate shareholders. The market for corporate control allows sufficient voting shares being obtained to expel the suboptimal managers and restore the optimality of firms. With these good intentions to improve firm performance, it is found that the low productive firms are inclined to be acquired and achieve productivity gains over time (Lichtenberg and Siegel, 1990). This proposition also echoes Dunning's (1988) internalisation theory which states an inputs transfer following a takeover such as technology, organisational assets, and brand names would expect an increase in the volume and/or value of outputs. Therefore, the ownership advantage possessed by MNEs will improve target's productive efficiency in takeovers. Hypothesis 1 is deduced as follows:

Hypothesis 1: The higher the ownership advantages that an MNE possesses, the higher the productivity effect on the target firm after the cross border M&A is completed.

In above cases, there could be a selection bias when assessing the post-acquisition impact of foreign M&A, if one simply compares the time-profile of acquired and non-acquired firms. The selection bias occurred refers that the improvement of firm's productivity may be explained not only by the impact of cross border M&A but also by the initial high productivity level of firm per se. In other words, if the multinational firm has a high productivity level prior to the takeovers, its high productivity may continue rather than be influenced by takeovers. This research will use the rumoured but uncompleted M&A to control the selectivity bias.

When foreign firms acquire those targets with a low productivity, foreign acquirers intend to replace the poor management through overtaking inefficient managers who desire to maximise their own achievements rather than company profits. Then, surviving firms are expected to achieve a higher post-acquisition performance (Jensen, 1988). In contrast, other disparate literature such as the corporate efficiency hypothesis suggests that cross border deals are usually accompanied by a higher risk of failure (Bertrand and Zuniga, 2006; Harris and Ravenscraft,

1991). The reason for increased risk of failure in cross border M&A predominantly results from the information asymmetries between acquirers and targets. The large cultural distance and institutional differences bring firms with the information asymmetries which leads to high transaction costs (di Giovanni, 2002). Furthermore, the geographical distance makes it difficult to monitor (Degryse and Ongena, 2005) and transmit tacit knowledge (Blanc and Sierra, 1999).

From other aspects, the asymmetry due to lack of political influence and knowledge networks will increase the difficulty in organisational integration and may mislead the takeover decisions (Harris, 2009). Therefore, caused by these factors, including the resource shortage due to the difficulty of coordination over distance, a higher return might be expected by acquirers in cross border M&A in order to compensate for the high costs and risk during these transactions. In general, because of information asymmetry, Grimpe and Hussinger (2008a) find that the cross border M&A are on average much larger than domestic deals. Moreover, foreign operations are suggested to experience higher costs compared with domestic firms from the transaction cost literature. These may bring a negative relationship between cross border M&A and firm's productivity in spite of the good intention to improve firm performance. Thus, hypothesis 2 is generated as follows:

Hypothesis 2: The higher the transaction costs due to information asymmetry, the lower the productivity effect on both targets and acquirers after the cross border M&A is completed.

5.2.2 Productivity in Market Seeking M&A

Built into the IO literature, the operational efficiency theory asserts that highly productive firms will be inclined to change ownership leading to improved post-acquisition productivity (Elango and Sambharya, 2004). Drawing on this theory, Buckley and Casson (1998) argue that the foreign acquirer can achieve monopoly power through overtaking the domestic monopolist in order to reduce capacity and avoid a price war between the acquired target and itself.

Although it is suggested that some multinational firms show higher productivity than domestic-owned firms (Conyon et al., 2002; Girma et al., 2001), it does not mean that foreign ownership *per se* leads to higher productivity. Harris and Robinson (2002) argue that, to the extent that foreign investors acquire the best performing firms, the productivity advantage might not be associated with foreign ownership *per se*. They provide empirical evidence showing that foreign investors tend to acquire firms with higher productivity in comparison with other

manufacturing firms in the UK. Schiffbauer, et al. (2009) explains that foreign multinationals may also influence the market structure and the extent of competition in the host country. The industrial organization (IO) literature casts further complex lights on the impacts of M&A on firm's productivity in the longer-run. On the one hand, the concentration of market power leads to a decline in competition (Borjas and Ramey, 1995). Less competition pressure provides firms with less incentive to improve their productivity, which potentially lowers the long-run productivity growth in that industry. On the other hand, the application of technological or organisational knowledge, economies of scale, or the remediation of managerial slack leads to long-run productivity gains. In the short-run, however, it is expected that the high short-run costs of reorganisation results in a negative impact of takeovers on firm's productivity. This impact of reorganisation is expected to be larger after cross-border deals because of higher adaptation costs. Similarly, long-run productivity changes after foreign M&A are potentially more pronounced due to the larger scope for knowledge spill-over and adverse competition. (Schiffbauer et al., 2009)

Since the modern internalisation and transaction cost theory (Dunning, 1980; Casson, 1995) is presented, Caves (1996) further indicates that the premier among proprietary assets of multinational enterprises is the firm-specific knowledge embodied in new products, processes and proprietary technology. Caves implies that the industries with high R&D and advertising intensities are the places where multinationals usually gather. The investing multinationals are usually argued to provide the domestic firms with their advantageous intangible assets such as innovativeness, technological and managerial knowledge, brand name capital and organisational capabilities (Dunning and Cantwell, 1991; Mason et al., 2009; Kirca et al., 2011). However, it is problematic to mobilise the technological knowledge and brand name recognition/reputation across markets. Especially, licensing brand name will share an intangible asset (reputation) at the risk of horizontal externalities. Similarly, some multinationals own competitive advantage such as superior organisational routines and practices which are uneasily mobilised between markets due to their intangibility (Bassett, 1986). Thus, it is assumed that the productivity improvement of acquired firms may not be reflected immediately after takeovers. This may suggest a low post-M&A productivity level for both acquirer and target firms.

It is difficult to achieve the efficiency gains from results based on management interest hypothesis. Because some M&A are involved with public corporations in which the owners are

typically separated from the management, the ineffective corporate governance mechanism in the acquiring firms may lead the M&A to a result of failure (Shleifer and Vishny, 1997). Budzinski and Kretschmer (2009) emphasise that productivity improvement might not be achieved after M&A if this investment comes from managers' utility maximisation. Such utility may include intention for expansion and enlarged control for more employees. Similarly, Jensen (1986b) hypotheses that managers prefer reinvesting free cash to distributing it to investors. Hence, even with a good will to improve efficiency, managers might find difficult to achieve it if they cannot realise expected synergies in the post-acquisition integration process. Alternatively, if managers just abuse their discretion to initiate takeovers, such M&A are less likely to improve the productivity. Accordingly, there is a negative productivity effect after M&A based on above arguments. Hypothesis 3 is developed as follows:

Hypothesis 3: The higher the difficulty in transfer of intangible advantages in cross border M&A, the lower the post-acquisition productivity level for both targets and acquirers in cases of market-seeking motives.

5.2.3 Productivity in Strategic Asset-Seeking M&A

In addition to the traditionally known arguments, other concepts also are developed from a resource based view in recent research, for instance the complementarities in assets between the acquirer and target (Norback and Persson, 2008). The resource based approaches assume that firms own heterogeneous factors which comprise the intangible resources, and these strategic resources possess the feature of immobility. The strategic composition of idiosyncratic resources such as knowledge, competences and capabilities eventually determines the competitiveness of a firm (Barney, 1991; Peteraf, 1993; Grant, 1996). A competitive advantage is generated from the immobile, non-substitutable and imperfectly imitable strategic resources (Mahoney and Pandian, 1992; Amit and Schoemaker, 1993; Peteraf, 1993; Teece et al., 1997). In fact, the differences in performance across firms from the same industry can be interpreted by these different resources (Teece et al., 1997). Moreover, Barney (1991) implies that the competitive advantages would be strengthened through obtaining the underlying resource. Accordingly, these features of strategic resources allow M&A to be a premier strategy in outsourcing. M&A can maintain the whole batch of knowledge, competences and capabilities under integrated management (Nelson and Winter, 1982). Thus, the heterogeneous resource endowment and the superiority of certain resource bundles make a firm perform differently from other firms within the same industry, and they explain the intra-industrial M&A activity

and their success. The heterogeneity of resource endowment between acquirers and targets can be reallocated and adjusted via takeovers, which should explain the difference in post-M&A productivity level.

The productivity of investing firms can be influenced by cross border M&A via a variety of channels, for instance the innovation activities. First, acquisitions may directly relocate innovation activities in order to improve productivity. Second, acquisitions may indirectly change productivity through affecting other determinants of productivity such as a firm size, market share, competition, technological opportunities, external knowledge sources, market demand, and financial factors (Cohen and Levine, 1989; Hall and Mairesse, 2006). As the competition in technology mainly occurs in the international market, the technological relatedness between acquirer and target is important in the cross border M&A (Frey and Hussinger, 2006). Furthermore, it is suggested that technology shocks drive the assets to be reallocated to more productive firms via M&A in recent theoretical and empirical contributions (Jovanovic and Rousseau, 2008). Acquiring the main competitors is an attractive way to eliminate competition in the product markets (Kamien and Zang, 1990) or technology markets (Grimpe and Hussinger, 2008b). However, the elimination of the competition in technology markets due to takeovers may provide less incentive for firms to increase innovation activities which lead to a potential decrease in productivity after takeovers (Borjas and Ramey, 1995).

A recent attempt to link intangible assets to productivity improvement has been conducted by Riley and Robinson (2011) and Dal Borgo et al. (2012). Their findings significantly evidence that firms with a higher proportion of intangible assets are more likely to be highly productive. Acquirers can exploit the production capabilities or intangible assets by acquiring target firms with these resources (Jovanovic and Rousseau, 2008). The dissemination of knowledge within the combined entity (Roller et al., 2001) or reallocation of technology to more efficient uses (Jovanovic and Rousseau, 2008) will generate productivity gains after an acquisition. The synergetic effect stemming from M&A might increase the efficiency of innovation activities which might improve productivity of firms. However, intangible assets include a wide range of contents and are more difficult to measure than R&D expenditure or innovation capabilities of firms. The various elements of intangible assets are also found to contribute to productivity in different ways (Riley and Robinson, 2011). Additionally, the firms may not gain productivity improvement after takeovers if the intangible resources such as knowledge, technology, and managerial capability are not exploited effectively (Stiebale, 2013). For example, due to the

intangibility of tacit knowledge, it is difficult to transmit such knowledge as managerial skills or manufacturing technique from target firms (Blanc and Sierra, 1999). Accordingly, it is inconclusive in evaluating the impacts of intangible assets on firm's productivity, especially when such M&A are driven by a strategic assets seeking motive. Thus, based on above arguments, hypothesis 4 is listed as follows:

Hypothesis 4: The lower the incentive for innovation and potential effective exploitation on intangible assets in cross border M&A, the lower the post-acquisition productivity level for both targets and acquirers in cases of strategic asset seeking motives.

5.2.4 Empirical Evidence about Productivity

5.2.4.1 The Contradictory Previous Evidence for International M&A

There are still mixed results about the effects of acquisitions on firm's productivity in foreign takeovers so far. It is suggested that foreign acquisition can bring positive productivity under the impact of various firm- and/or industry-level factors such as pre-acquisition productivity level (Girma, 2005), size (Bellak et al., 2006), nationality of ownership (Bellak et al., 2006), and domestic competition (Girma et al., 2006). Particularly, Girma et al. (2007) point out the positive productivity effects being associated with pre-acquisition level of productivity by using the UK manufacturing firms. Nevertheless, Girma (2005) suggests that the impact of technology transfer will be mostly centralised in the years immediately after the international takeover. Hence, the impact of M&A on firm's productivity will be diminishing over time in the long term.

Additionally, Piscitello and Rabbiosi (2002) imply that firm size will play a role in productivity gains, i.e. the smaller firms usually gain significant productivity improvement. They also differentiate the productivity pattern between firms taken over by European and the US investors. Hughes and Saleheen (2012) estimate average annual productivity growth of 4.3 per cent in the manufacturing sector and 2.3 per cent for the pre-crisis period of 1998-2004, whereas the productivity growth of 2.9 per cent and 0.4 per cent are reported for the 2009-2011 period for the manufacturing and service sector, respectively. Additionally, Girma et al. (2006) insist that the competition of the industry will enhance the potential productivity benefits in the cross border M&A by using data of the UK firms acquired by the US and European MNEs. Further, Girma et al. (2007) found the positive impact of foreign acquisition on the productivity level of

domestic exporters over time due to technology transfer.

However, although positive productivity effects of M&A on the combined entity are reported in several empirical studies (e.g. Conyon et al., 2002; Maksimovic and Phillips, 2001), this does not mean the acquiring firm can achieve productivity gains for certain, especially in diversifying acquisitions (Schoar, 2002). In a more disparate literature, it is also found that foreign takeover generates limited productivity gains in the acquired firms (e.g. Salis, 2008, for the Slovenian manufacturing sector; and Bellak et al., 2006, for a sample of Austrian firms). Meanwhile, foreign ownership is also found to have negative effects on the post-acquisition productivity of the acquired firm in various other studies. For instance, Harris and Robinson (2002) concluded that there was an overall slight decline in the productivity level following the takeover by using plant level data in the UK manufacturing sector for the period 1987-1992. Similarly, in Gioia and Thomsen's (2002) study of Danish firms from 1990 to 1997, it is manifested that the performance of acquired firms had a negative intention following the international takeovers based on the estimates after selection adjustment. However, existing empirical studies that analyse the impact of cross-border acquisitions on the productivity at the firm level are mostly limited to the evidence on the impact on target firms.

5.2.4.2 The Evidence about Productivity with Controlling the Selection Bias

The early studies tended to ignore any sample selection issues surrounding the link between the pre-M&A characteristics of the firm that impact on post-M&A performance. Recent research has exploited the use of sample selection techniques to overcome this bias. For example, using data from the Swedish manufacturing sector for 1986–2002, Karpaty (2007) utilises a more sophisticated econometric approach to investigate such productivity gains. Built on the propensity score matching technique with a difference in-difference estimator, his results indicate that the productivity of the acquired Swedish firms raise by between 3 and 11 per cent after foreign acquisitions depending on the estimator chosen. Yet, such productivity change does not take place immediately but rather one to five years post acquisition.

Furthermore, Fukao et al. (2005) identify a larger and quicker improvement in TFP using data from Japanese manufacturing firms (1994–2000). In a later study, Fukao et al. (2006) adopted the difference-in-difference approach in conjunction with propensity score matching to take account of the selection problem that had not been controlled for in the previous study. Results from both unmatched samples and matched samples implied that foreign acquisitions improve

the target firms' productivity more significantly than domestic acquisitions. Neary (2007) argues that cross-border M&A reallocate production from less efficient acquisition targets to more efficient foreign investors. If efficiency differences between firms across countries are the main motives of international takeovers, the economic activity in acquiring firms would be expected to increase more than target firms. Similarly, Breinlich (2008) argue that the higher productive firms acquire the lower productive targets which experience the increased competition in the home market after trade liberalisation.

5.2.5 TFP and Labour Productivity

By comparing TFP with labour productivity, Schiffbauer et al. (2009) indicate that the use of labour productivity instead of TFP to measure the influence of M&A on the productivity of the UK target firms is misleading. Specifically, TFP reflects firm efficiency gains due to the diffusion of technological or organisational knowledge and economies of scale, with less focus on the transmission channels. Labour productivity, in contrast, is a broader measure that captures these TFP effects as well as changes in the firm's capital-labour ratio. The increase in labour productivity due to foreign ownership can result from an increase in the capital-labour ratio, i.e. capital deepening, instead of the theoretically suggested TFP effects, i.e. technological or organisational knowledge diffusion. Thus, in their research, foreign firms substantially restructure target firms in the UK by reducing the number of employees relative to capital stocks. This finding explains the difference between the results based on TFP and labour productivity. Therefore, Schiffbauer et al. (2009) concludes that TFP is the more appropriate measure to identify the causal impact of foreign acquisitions on firm performance.

When considering the use of different measures for productivity, most research reports that foreign M&A exert a positive and significant impact on the acquired firm's labour productivity (McGuckin and Nguyen, 2001, for the US; Conyon et al., 2002, for the UK; Piscitello and Rabbiosi, 2005, for Italy; Moden, 1998, for Sweden; Arnold and Javorcik, 2005, for Indonesia). However, labour productivity is determined by factor inputs and the determinants of TFP. Actually, it is the mixed influence of changes in factor inputs and TFP. This makes labour productivity a less useful measure of productivity (Harris, 2005). However, when using TFP as productivity measure, Harris and Robinson (2002) do not find aggregate TFP improvement due to foreign M&A in the UK. Their findings conflict with the findings of Conyon et al. (2002) who employs labour productivity. Therefore, it is worth detecting whether the impact of foreign M&A depends on the measure of firm's productivity.

5.3 Data and Methodology

5.3.1 Data

This research is based on firm-level data globally over the period from 2002 until 2011. It employs M&A data from the Bureau van Dijk's Zephyr database which has information on over 19,685 cross border M&A all over the world between 2002 until 2011. This information is combined with the data from the Orbis database which provides detailed balance sheet data for all target and acquirer firms. The Orbis database also allows the construction of longitudinal panels as it collects firm-level information over a period of ten years. Also, many firms are observed for a shorter period of time, making the panel unbalanced. Regarding productivity analysis, Orbis offers the opportunity to measure TFP due to the availability of total fixed assets which is commonly used to proxy capital in the production function. The combination of both datasets allows the author to investigate the effects of cross border M&A on the short-run performance of target and acquirer firms respectively in different industries.

This research divides the sample collected into two subsamples based on the difference of intangible assets volume prior to cross border M&A between acquirer and targets. The two subsamples comprise the deals that acquirers own more intangible assets than targets and the deals that acquirers own less intangible assets than targets. The purpose of this separation is to examine the effects of market seeking M&A and strategic asset seeking M&A respectively. The deals with high intangible assets of acquirers are categorised to the market seeking M&A, while the deals with low intangible assets of acquirers are categorised to the strategic asset seeking M&A. Table 5.1 lists the distribution of cross border M&A status in the deals with product market driven expansion and complementary resource driven expansion. In this dataset, there are 18,091 international deals in the former type expansions, which account for 91.9 per cent of all types of expansion. Furthermore, most cross border M&A are rumoured and completed, which accounts for 90.38 per cent of all international deals. More specifically, in the product market driven expansion, 16,401 international deals are rumoured and completed during 2002 to 2011, while 1,690 deals are rumoured and abandoned later. Although the number of complementary resource driven expansion is relatively smaller, 87.2 per cent in 1,594 international deals are completed.

Table 5.1 The distributions of cross border M&A status and pre-M&A acquirer feature

Pre-M&A acquirer	Uncompleted M&A		Completed M&A		Total	
High intangible asset	1,690	(9.34%)	16,401	(90.66%)	18,091	(100%)
	(89.23%)		(92.19%)		(91.90%)	
Low intangible asset	204	(12.80%)	1,390	(87.20%)	1,594	(100%)
	(10.77%)		(7.81%)		(8.10%)	
Total	1,894	(9.62%)	17,791	(90.38%)	19,685	(100%)
	(100%)		(100%)		(100%)	

Source: Author's calculations from Orbis and Zephyr data set.

5.3.2 Measuring Productivity

The main productivity measure is TFP, since changes in TFP directly reflect the efficiency gains following acquisitions due to the diffusion of technological or organisational knowledge and economies of scale. The author initially derives TFP of firm j at time t as a residual from a Cobb-Douglas production function in logs:

$$y_{jt} = \alpha^{k}K_{jt} + \alpha^{l}L_{jt} + \eta_{j} + \mu_{t} + \varepsilon_{jt} \quad (5.1)$$

where y_{jt} denotes a firm's value added, K_{jt} and L_{jt} denote the physical capital and labour inputs, η_j is a vector of firm specific effects, μ_t is a vector of year specific effects, $\alpha = (\alpha^k; \alpha^l)$ a vector of average input elasticity, and ε_{jt} is an error term.

From the above estimation, empirical measures of the average input elasticity α^k and α^l from firm level data. The heterogeneous marginal input effects are estimated across two-digit (NACE) industry levels separately. However, this estimation involves an endogeneity problem, i.e. firm's demand for factor inputs is expected to depend on its productivity level simultaneously which is captured in the error term. That means that the independent variables are correlated with the error term. It is not observed by the econometrician, and it can impact the choices of inputs, resulting in the well-known simultaneity problem in production function estimation. Estimation ignoring the correlation between inputs and the unobservable factor will lead to inconsistent results. Appropriate instruments for this input that are uncorrelated with productivity are typically not available.

Nevertheless, Olley and Pakes (1996) use investment as a proxy for the unobservable shocks. They develop a semi-parametric estimator to extract consistent estimates of the input elasticity in production function estimations. The method supposes that a firm's investment decision is a function of its capital stock, age, and its unobserved productivity. Hence, the unobserved

productivity parameter can be modelled as some (inverse) function of investments, capital, and age given the assumption of a monotonic relationship between investment and productivity. However, Levinsohn and Petrin (2003) indicate that the investment could be very lumpy due to substantial adjustment costs based on the evidence from firm-level datasets. This causes the investment proxy to maybe not smoothly respond to the productivity shock and may violate the consistency condition. Moreover, it is shown that the valid condition of investment proxy is the existence of the non-zero investment for firms. This will severely truncate all the zero investment firms in the sample of some countries' data.

Furthermore, based on the procedure of Olley and Pakes (1996) (OP), Levinsohn and Petrin (2003) (LP) advance the approach by addressing the lumpy investment problem with using an alternative variable, namely intermediate input (e.g. raw materials or electricity). These inputs are not used to generate value added by adjusting them from the gross output number, so this eliminates the additional cost in data or computation. If the intermediate input is less costly for adjustment, it may respond more fully to the entire productivity shock than investment. Besides, the intermediate input can avoid truncation in the sample because firms almost always report positive use of intermediate input such as raw materials or electricity. This alternative proxy makes the researchers easy to implement estimation and exploiting of more existing data. More importantly, the advantage of the LP approach also lies in controlling for the simultaneity between firm's choice of input levels and unobserved productivity shocks. Therefore, this research follows approach of Levinsohn and Petrin (2003) to construct TFP.

With adopting the LP approach, The Cobb-Douglas production function has been reformed as follows:

$$y_{it} = \beta_0 + \beta_l l_{it} + \beta_k k_{it} + \omega_{it} + \varepsilon_{it} \equiv \beta_l l_{it} + \varphi_t (k_{it}, m_{it}) + \varepsilon_{it} \quad (5.2)$$

where $\varphi_t \equiv \varphi_t (k_{it}, m_{it}) = \beta_0 + \beta_k k_{it} + \omega_{it} (k_{it}, m_{it})$ is an unknown function of capital and intermediate inputs. φ_t is a strictly increase in the productivity shock ω_t, so that it can be inverted and one can write $\omega_{it} = \omega_t (k_{it}, m_{it})$ for some function ω_t. Levinsohn and Petrin (2003) approximate $\varphi_t (k_{it}, m_{it})$ by a third order polynomial in k and m, $\sum_{j=0}^{3} \sum_{s}^{3} \delta_{js} k_{it}^{j} m_{it}^{s}$ and obtain the estimate of β_l and φ_t via OLS. Follow the first stage of the estimation procedure above, the second stage defines the elasticity of capital β_l as the solution to $\min_{\beta_k^*} \sum_i \sum_t \left(y_{it} - \hat{\beta}_l l_{it} - \beta_k^* k_{it} - \bar{\omega}_{it}\right)^2$, where $\bar{\omega}_{it}$ is a nonparametric approximation E [ω_{it} | ω_{it-1}]. All of the estimators in the

two stages make it vary to calculate the covariance matrix of the parameters, so the bootstrapping procedure is applied to estimate standard errors. Once obtaining consistent estimates, the log of productivity can be expressed as $\hat{\omega}_{it} = \hat{y}_{it} - \beta_0 - \hat{\beta}_l l_{it} - \hat{\beta}_k k_{it}$.

The computation of TFP requires information on output, physical capital, labour, and the corresponding inputs' elasticity. The author measures output as firm's economic value added. Capital and labour are measured as total assets and the number of employees, respectively. The author also includes intermediate inputs, measured by the material cost, which is included as an instrument to control the unobservable technology shock in the estimation procedure of Levinsohn and Petrin (2003). The quality of the results depends crucially on the construction of a detailed and unbiased productivity measure. Thus, this research also uses the labour productivity to check for the robustness of the main results.

5.3.3 Method and Variables

As mentioned in the literature review section of this chapter, although there are some benefits for using propensity score matching approach to overcome the sample selection bias, this research will not use this technique. The author has a more direct way to simulate the counterfactual cases which is mainly concerned by a matching approach. This direct way is the control group of the rumoured but abandoned M&A which will represent those deals that have some potential to occur but actually are not conducted. The detailed advantages of this use have been discussed in the previous chapter.

This research will examine respectively the effects of cross border M&A on target firm's productivity and acquirer firm's productivity. The firm-level information for both sides will be employed in the baseline estimation model respectively. The baseline model in this research takes the following form:

$$TFP_{it+1} = \beta_0 + \beta_1 Completed\_MA_{it} + \beta_2 X_{it-1} + \beta_3 MAtype_{it} + v_t + v_j + \varepsilon_i \qquad (5.3)$$

where TFP_{it+1} is the value in one year after the M&A deal completed or rumoured. Sometimes, the firm's financial information is incomplete during the year of M&A announcement or completion because an M&A event may occur in the middle of the firm's financial year. This ensures that the firm's financial information is complete for a whole financial year. Particularly, in terms of the rumoured but uncompleted deals, the TFP_{it+1} refers to the productivity level of

potential target or acquirer whoever was involved in the uncompleted international M&A.

The Completed_MA_{it} is a binary variable, capturing the cross border M&A's status, which takes value 1 if the M&A's status of testing firm is rumoured and completed, and takes value 0 if its M&A's status is rumoured but uncompleted. Testing if this dummy is statistically significant in affecting TFP level will show us evidence for the role of completion of M&A deals, controlling for other factors and firm unobserved heterogeneity. The main interest of this research is whether a firm's productivity is influenced after the completion of an M&A deal compared with the abandoned potential deal which is the deal only experiencing the takeover rumour. The vector X_{it-1} captures a set of control variables that have been found in the literature to be important in explaining firm's productivity level in general. According to Bellak et al. (2006), the pre-acquisition characteristics could affect performance in the future, so pre-performance is linked to explanations of possible productivity gains after an M&A activity. These variables include following firm characteristics observed in the pre-acquisition period: firm size, the intangible resource, and characteristic variables to capture financial leverage and liquidity.

Firm size is measured by firm's total fixed assets. In the empirical literature, intangible assets are often used as an input indicator of innovation and as an alternative to R&D spending or innovation success (Riley and Robinson, 2011; Dal Borgo et al., 2012). It includes goodwill, intellectual property rights, patents, trademarks, R&D investment, website domain names and typically long-term investment which may relate to a firm's innovative efforts. The intangible asset's advantage of being a variable is presented to be continuous and derived from administrative data sources rather than from surveys (Bartoloni, 2010), but the exact composition of this variable is unknown because of the discretion of what firms decide to report as intangible assets.

The financial leverage and liquidity are measured by the firm's gearing ratio and cash flow respectively. The gain in productivity may benefit from aggressive use of leverage, which can use tax-deductible debt to evade the tax payment. The managers' under exploitation of their borrowing ability gives firms more chance to be overtaken. Furthermore, holding large cash flow is expected to impact a firm negatively in the finance literature. Especially, the separation of enterprise operation and ownership make interests and incentives of managers and shareholders conflict over the optimal size of the firm and the payment of dividends to shareholders. Holding large cash flow is accepted that managers are less competent to exploit

profitable investment opportunities and at the same time not distributing these to shareholders (Jensen, 1987). It is also argued that managers hold large amounts of cash to buffer the emergency situation in the current uncertain economic climate.

It is suggested that firm characteristics affect its productivity. However, some firm characteristics can also accumulate from the preceding period due to the effect of firm's productivity such as technological advantage or cash holdings, etc. In other words, the firm characteristics are also influenced by its productivity. Similarly, there is simultaneity between M&A activities and firm's productivity. These two variables affect each other as well. Hence, there is potential endogeneity in the estimation model. However, the predetermined variable is usually employed to diminish the potential endogenous problem. Therefore, the firm's productivity level is led by one year for the dependent variable in the estimation model. Additionally, the baseline investigation uses pooled static models in which all explanatory variables, except for Completed_MA and MAtype, are lagged by one year to diminish the potential endogeneity and correct heteroskedastic standard errors by clustering at the individual firm level.

Another control variable is $MAtype_{it}$. It stands for the type of M&A which includes vertical, horizontal and conglomerate M&A. Finally, the error term is made up of a time-specific component (v_t), a two-digit industry-specific component (v_j), and an idiosyncratic error term ε_i.

This research also looks at the subsample of deals with acquirers having more intangible assets than targets and deals with targets having more intangible assets than acquirers. This separation will answer the effect of M&A event on firms' productivity in the deals where an acquirer firm's advantage in intangible resources e.g. advanced technology can compensate for its disadvantage in information asymmetry and in the deals where a target firm's intangible resource is the main aim of M&A. This baseline model is equal to allow for intercept heterogeneity. The estimation corrects heteroskedastic standard errors first by clustering at the individual firm level in the baseline least squares estimation, and then by using labour productivity as a robustness check. The labour productivity is defined as total revenue per employee. The working assumption is that a good measure of TFP should exhibit a reasonable high correlation with labour productivity.

Conditional on effects of M&A completions on the productivity level, the research further search for potential channels through which completion of M&A may shape post-acquisition

TFP. To this end, we modify equation 5.3 by allowing parameter heterogeneity in M&A completions:

$$TFP_{it+1} = \beta_0 + \beta_1 Completed\_MA_{it} + \beta_2 X_{it-1} + \beta_3 X_{it-1*} Completed\_MA_{it} + \beta_4 MAtype_{it} + v_t + v_j + \varepsilon_i \quad (5.4)$$

By interacting $Completed\_MA_{it}$ with firm characteristics, equation 5.4 examines the TFP effects due to completion of M&A indirectly through various firm characteristics differences. The similar estimation will be also conducted for labour productivity.

In order to assess whether there is a difference in ownership advantage between MNEs and non-MNEs, this research will also estimate the impact of firm MNE status on target's post-M&A productivity level by modelling four groups of completed cross border M&A deals. They are four types of deals with MNE acquirer, non-MNE acquirer, MNE target and non-MNE target respectively. The specifications are constructed as follows:

$$TFP_{it+1} = \beta_0 + \beta_1 T\_mne + \beta_2 X_{it-1} + \beta_3 MAtype_{it} + v_t + v_j + \varepsilon_i \quad (5.5)$$

$$TFP_{it+1} = \beta_0 + \beta_1 A\_mne + \beta_2 X_{it-1} + \beta_3 MAtype_{it} + v_t + v_j + \varepsilon_i \quad (5.6)$$

T_mne stands for the target's MNE status dummy, while A_mne stands for the acquirer's MNE status dummy. Value of 1 denotes MNE firm and value of 0 denotes non-MNE firm. Other variables keep the same. The four types of deals are constructed by dividing A_mne = 1 or 0 in the equation 5.5 and T_mne = 1 or 0 in the equation 5.6.

5.4 Results and Discussion

5.4.1 The Impact of MNE Status on Target's Productivity

The impact of MNE status on a target's post-acquisition productivity is reported in table 5.2. All these models include the pre-M&A target's characteristics such as cash flow, corporate financial leverage, intangible assets and firm size. Four models also include the target MNE status dummy and acquirer MNE status dummy respectively. The year and industry dummies are controlled in all the four models.

In model (1), when the acquirer is an MNE in the international M&A, target's MNE status shows a significant and positive sign. This means MNE target's TFP level will be improved

when it is acquired by another MNE firm. The MNE status in model (2), (3) and (4) is not found significant. This means that only the cross border M&A between multinational corporations can bring target firms with the improvement of productive efficiency. It is not found the significant evidence for the transfer of ownership advantage from MNEs to non-MNEs in the international takeovers. It can be implied that the increase in productivity due to technological shock can only take place in the integration between MNEs.

The significant and negative coefficients of the target's gearing ratio in columns (1), (3) and (4) suggest that a high level of the target's leverage will reduce its TFP level when it is acquired by an MNE and no matter whether it is an MNE. This can be explained that a high debt burden forces the firm to reduce its spending on technological innovation, which is not beneficial to the TFP improvement. In terms of the target's cash flow, the significant and positive coefficients in columns (1), (2) and (4) imply that the large cash holdings of targets improve their TFP levels no matter whether they are acquired by MNEs or when they are non-MNEs *per se*. This could be explained that the large cash holdings enable targets to increase expenditure on R&D, which results in the TFP improvement. In addition, the target's size measure reports a significant and positive sign for all columns in table 5.2. This suggests that large firms incline to have high TFP levels no matter whether they are MNEs. This echoes the results for MNE status.

Table 5.2 The impact of MNE status on target's post-M&A TFP

	(1)			(2)			(3)			(4)		
	MNE acquirer			Non-MNE acquirer			MNE target			Non-MNE target		
$TTFP_{t+1}$	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.
T_mne	4.03E-01	9.99E-02	***	2.77E-01	1.87E-01							
A_mne							1.52E-01	1.79E-01		1.14E-01	9.03E-02	
$TGearingRatio_{t-1}$	-1.09E-03	2.72E-04	***	-6.25E-04	4.85E-04		-2.68E-03	6.54E-04	***	-7.86E-04	2.55E-04	***
$TCashFlow_{t-1}$	5.37E-06	2.28E-06	**	1.22E-05	4.11E-06	***	-9.41E-07	4.98E-06		6.48E-06	2.17E-06	***
$TIntangibleAsset_{t-1}$	1.30E-06	3.87E-06		2.63E-06	6.92E-06		1.01E-06	7.56E-06		1.41E-06	3.84E-06	
$TTotalAsset_{t-1}$	5.88E-08	1.43E-08	***	7.13E-07	3.51E-07	**	9.26E-08	1.85E-08	***	1.58E-07	4.16E-08	***
MAtype												
Vertical_MA	9.41E-02	1.97E-01		4.53E-01	4.51E-01		-1.01E-01	4.46E-01		2.77E-01	1.98E-01	
Horizontal_MA	-4.47E-02	8.96E-02		-2.54E-02	1.59E-01		1.08E-01	1.81E-01		2.59E-02	8.69E-02	
Constant term	5.85E+00	9.93E-01	***	5.03E+00	1.49E+00	***	6.64E+00	1.46E+00	***	4.78E+00	1.37E+00	***
Adj R-squared	0.0959			0.1052			0.1423			0.059		
No. of obs.	1167			391			307			1251		

Note: 1. All regressions include year dummy and NACE 2-digit industrial sector dummies.

2. ***, **, * denotes significance at the 1, 5, and 10 percent level, respectively.

5.4.2 Effects of Cross Border M&A on Target's TFP

The sample information for the model of M&A's impact on target's post-acquisition TFP is summarised in the below table. From this table, all variables show positive mean value in the sample of 2,110 cross border M&A, while the dependent variable of target's post-acquisition TFP has negative values for some observations. This means that some targets have not achieved technological improvement. The wide spread exists in such variables as target's cash flow, intangible assets and total assets.

Table 5.3 Descriptive statistics for the impact of M&A on target's TFP

Variable	Obs.	Mean	Std. Dev.	Min	Max
$TTFP_{t+1}$	2110	5.34147	1.388856	-1.700142	8.797506
$Completed\_MA_{t}$	2110	0.8611374	0.345885	0	1
$TGearingRatio_{t-1}$	2110	89.23298	149.0312	0	981.54
$TCashFlow_{t-1}$	2110	36431.39	17057.82	1	64793
$TIntangibleAsset_{t-1}$	2110	11131.99	10287.72	12	31304
$TTotalAsset_{t-1}$	2110	1132148	8024461	27	2.02E+08
MAtype	2110	1.764455	0.9506391	1	3

The descriptive statistics is analysed by using the full model with control variables.

Table 5.4 reports the effect of cross border M&A on target's productivity measured by TFP over the examined period, 2002-2011. One of the research tasks is to seek an understanding of possible TFP change channels through which a completion of an M&A may influence firm's productivity. This is done by interacting the M&A completions dummy and key firm characteristics. Thus, two sets of static model estimation results are discussed below, which are a baseline model and a model with interaction terms. The samples are split into high amount of intangible resource in acquirer and high amount of that in target according to the difference of intangible assets between target and acquirer firms. These two subsamples can be regarded as the deal that an acquirer with high technology and managerial advantage acquires other targets and the deal that a target with complementary resource is acquired by other acquirers. The results of estimates for two samples are also reported in Table 5.4. The year and industry effects are controlled for both baseline model and interaction model.

Across model specifications, the key variable Complete_M&A shows significant and negative coefficients in column (1) of table 5.4. This suggests that the completion of cross border M&A will reduce target's TFP level comparing with the abandoned takeover rumours. Furthermore,

controlling for other factors, column (3) in table 5.4 shows a significant and negative relationship between the target's TFP level and the completion of cross border M&A when the acquirer has more intangible assets than the target. This implies that acquirers fail to transfer their intangible advantages to targets and the completion of cross border M&A provides targets with a low TFP level in the deals with market seeking motive. Targets have not benefited from the acquirer's intangible advantages in M&A. This finding is supported by Bertrand and Zuniga (2006) who argue that the high transaction costs due to information asymmetry will reduce the performance of technology transfer and exploitation on strategic resources in cross border M&A, leading to a low post-acquisition TFP level in the short term.

In column (1) and (2) of table 5.4, there are significant and negative coefficients of gearing ratio for targets. This means that high operational risk will reduce the target's TFP level in international M&A and this effect will be strengthened if the deal is completed. The detrimental impact on target's productivity is confirmed in both subsamples of high (in column 3) and low (in column 5) acquirer's intangible assets. The anxiety to high insolvency rate makes managements fail to apply the parent firm's intangible advantage or is unable to allocate the target's resource efficiently in the short term after cross border M&A.

In column (1) of table 5.4, the significant and positive sign of target's cash flow demonstrates that the high liquidity of a firm can improve their productivity in international takeovers. Being consistent with the previous findings (Carpenter and Guariglia, 2008, Du et al., 2014), more cash holding could also release restrictions on hiring more skilled labour and developing more innovation and hence boost higher productivity. Column (3) of table 5.4 suggests that sufficient funds will improve the target's TFP if its acquirer has high intangible assets. This can be explained that target can only benefit from its acquirer's technology or managerial advantages in cross border M&A.

From column (1) and (2) of table 5.4, the coefficients of target's intangible assets are significant and positive in cross border M&A. The finding suggests that the more intangible assets the target possesses, the more likely the target's TFP level is to be improved. The result from column (3) of table 5.4 also confirms this effect if acquirers have high intangible assets. This implies that acquirer's managerial skill may reallocate the target's intangible resource more effectively to improve the target's TFP level. This also mirrors that the imitation and exploitation of advances in technology can increase productivity in terms of TFP (Archibugi and Michie, 1995; Hart and McGuinness, 2003; Du et al. 2014). These results are consistent

with Sohal et al. (2001) who finds that service industries employ IT to enhance the value of products and services to a greater extent than manufacturing, which can then lead to a higher TFP level. However, the negative interaction term in column (4) of table 5.4 suggests that the completion of M&A may weaken the positive effect on target's TFP level.

From column (1) and (2) of table 5.4, the total assets measure the size of firm and provide significant and positive signs for targets in cross border M&A. This means that big multinational firms incline to improve their productivity levels. Besides, the completion of M&A will reinforce this effect. Columns (3), (4), (5) and (6) in table 5.4 all confirm this positive relationship. It suggests that both the technological advantage oriented deals and the complementary resources oriented deals can increase target's productivity level in international M&A. These results are in line with the literature which finds positive size and productivity relationships (Rao and Tang, 2000; Van Biesebroeck, 2005; Leung et al. 2008; Du and Girma, 2012 and Du et al. 2014).

Table 5.4 The impact of cross border M&A on target's TFP

	All international deals						High intangible assets in acquirers						Low intangible assets in acquirers					
Model	(1)			(2)			(3)			(4)			(5)			(6)		
Dep: $TTFP_{t+1}$	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.
$Completed\_MA_T$	-1.71E-01	9.11E-02	**	-1.33E-01	2.27E-01		-1.83E-01	1.05E-01	*	-2.11E-01	2.60E-01		6.35E-02	2.03E-01		5.58E-01	5.87E-01	
$TGearingRatio_{t-1}$	-6.99E-04	2.03E-04	***	3.41E-04	5.64E-04		-7.83E-04	2.30E-04	***	8.72E-05	6.70E-04		-1.18E-03	4.90E-04	**	-7.38E-04	1.58E-03	
$TGearingRatio\_MA_{t-1}$				-1.21E-03	6.03E-04	**				-9.98E-04	7.11E-04					-7.39E-04	1.66E-03	
$TCashFlow_{t-1}$	4.92E-06	1.74E-06	***	5.51E-07	5.05E-06		5.07E-06	1.97E-06	***	-2.02E-06	5.93E-06		2.74E-06	4.12E-06		7.65E-06	1.15E-05	
$TCashFlow\_MA_{t-1}$				4.59E-06	5.37E-06					7.53E-06	6.28E-06					-7.25E-06	1.24E-05	
$TIntangibleAsset_{t-1}$	7.91E-06	2.90E-06	***	1.69E-05	7.72E-06	**	6.27E-06	3.41E-06	*	2.32E-05	9.42E-06	**	1.16E-05	8.29E-06		2.31E-05	2.05E-05	
$TIntangibleAsset\_MA_{t-1}$				-1.10E-05	8.33E-06					-1.99E-05	1.01E-05	**				-1.46E-05	2.23E-05	
$TTotalAsset_{t-1}$	2.90E-08	3.89E-09	***	2.30E-08	4.18E-09	***	3.29E-08	5.17E-09	***	2.35E-08	5.95E-09	***	2.77E-08	5.87E-09	***	2.64E-08	5.90E-09	***
$TTotalAsset\_MA_{t-1}$				3.63E-08	1.10E-08	***				3.19E-08	1.20E-08	***				2.48E-07	7.55E-08	***
M&A type																		
Vertical_MA	1.55E-01	1.64E-01		1.41E-01	1.63E-01		2.16E-01	1.82E-01		1.95E-01	1.82E-01		6.29E-02	3.99E-01		9.32E-02	3.95E-01	
Horizontal_MA	-1.76E-02	6.73E-02		-2.49E-02	6.71E-02		-2.35E-02	7.58E-02		-2.51E-02	7.57E-02		5.06E-02	1.66E-01		6.01E-02	1.66E-01	
constant term	6.08E+00	8.34E-01	***	6.06E+00	8.42E-01	***	6.03E+00	8.63E-01	***	6.04E+00	8.74E-01	***	5.07E+00	1.49E+00	***	4.42E+00	1.55E+00	***
Adj. R-squaredd	0.0906			0.0963			0.0985			0.1039			0.0886			0.109		
Number of obs.	2110			2110			1697			1697			413			413		

Note: 1. All regressions have controlled year dummy and NACE 2-digit industrial sector dummies.
2. ***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

This research uses the likelihood ratio test (LR test)[6] to compare differences among nested models because the baseline model can be regarded to be nested within the interaction model. The LR chi-squared value between column (1) and (2) of table 5.4 is 17.36 (p-value is 0.0016) based on the same observation numbers of the two models. Similarly, the LR chi-squared value between column (3) and (4) of table 5.4 is 14.27 (p-value is 0.0065), and the LR chi-squared value between column (5) and (6) of table 5.4 is 14.40 (p-value is 0.0061). They suggest that the three baseline models are nested well in the three interaction models for the whole cross border M&A sample and two subsamples of high and low intangible assets in acquirers. This can also be confirmed by greater adjusted R-squared values of interaction models than those of baseline models for three samples.

5.4.3 Effects of Cross Border M&A on Target's Labour Productivity

The sample information for the model of M&A's impact on target's post-acquisition labour productivity is summarised in the below table. From this table, all variables show positive mean value and positive values for all observations in the sample of 3,086 cross border M&A. Amongst, the wide spread exists in such variables as target's cash flow, intangible assets and total assets. The dependent variable of target's post-acquisition labour productivity also has a wide distribution on its observation values.

Table 5.5 Descriptive statistics for the impact of M&A on target's labour productivity

Variable	Obs.	Mean	Std. Dev.	Min	Max
TLP_{t+1}	3086	3646.318	1986.661	1	7222
$Completed\_MA_t$	3086	0.8684381	0.3380686	0	1
$TGearingRatio_{t-1}$	3086	98.85437	158.8537	0	992.41
$TCashFlow_{t-1}$	3086	34864.27	17951.72	1	64793
$TIntangibleAsset_{t-1}$	3086	11078.96	10268.31	12	31306
$TTotalAsset_{t-1}$	3086	857967.4	6688640	51	2.02E+08
MAtype	3086	1.745301	0.9454843	1	3

The descriptive statistics is analysed by using the full model with control variables.

[6] The likelihood ratio test is performed by estimating two models and comparing the fit of one model to the fit of the other. Removing predictor variables from a model will almost make the model fit less well (i.e. a model will have a lower log likelihood), but it is necessary to test whether the observed difference in model fit is statistically significant. The null hypothesis for the test is that the smaller model is the "true" model. The likelihood ratio test does this by comparing the log likelihoods of the two models. The null hypothesis is false if this difference is statistically significant. Thus, the less restrictive model (the one with more variables) is said to fit the data significantly better than the more restrictive model.

By comparing TFP with labour productivity, Schiffbauer et al., (2009) indicates that TFP gains results from the diffusion of technological or organisational knowledge and economies of scale, while the increase in labour productivity results from capital deepening. Due to the controversy about different productivity measures in the literature, it is worthy of detection whether the impact of foreign M&A depends on the measure of the firm's productivity. The alternative productivity measure, which is the target's labour productivity, has been tested and reported in table 5.6. Table 5.6 reports the same formats as table 5.4, but it replaces the dependent variables with the target's labour productivity. It also considers the effect of cross border M&A and uses the cross border M&A completions dummy to interact with key firm characteristics. Similarly, two sets of static model estimation results and two subsamples estimations are discussed below. The year and industry effects are also controlled for both baseline model and interaction model.

Across the specifications in table 5.6, the coefficient on Completed_MA is negative for targets in the cross border M&A. This means that the completion of M&A results in lower productivity than for firms who abandoned rumoured takeover. Controlling for other factors, columns (4) and (5) in table 5.6 confirm the significant and negative relationship between the target's labour productivity level and the completion of international M&A in the deals with both market seeking intention and strategic asset seeking intention. This implies that neither the acquirer's technological and managerial advantages nor the reallocation of target intangible resources can bring targets with the high labour productivity level after completing international M&A in the short term. This can be explained that the acquirers with high technology and managerial capabilities fail to allocate and use well the target's complementary resource.

In terms of the effect of financial leverage on the labour productivity level, the gearing ratio and its interaction term report significant positive coefficients for the target firms in column (1) and (2) of table 5.6. It suggests that high liability rate can improve the target's labour productivity and the completion of takeover can reinforce this positive effect. This finding is not consistent with the aforementioned impact of gearing ratio on the target's TFP level. One reason could be that more capital stock is invested into the production due to wider outside fundraising channels in cross border M&A comparing with domestic investments. Some duplicated departments of targets could be shut down after takeovers' completion, which reduces the number of employees in targets. Both effects prompt the ratio of capital over labour, hence increase the target's labour productivity. More specifically, column (5) of table 5.6 reports a positive coefficient for gearing ratio variable, and column (6) reports a positive

coefficient for its interaction term. This suggests that the higher the target's financial leverage is, the higher the target's labour productivity level is. In addition, the completion of M&A will facilitate targets to improve their labour efficiency in the strategic asset seeking takeovers. The aggressive use of debt provides targets with a tax shield to avoid the tax payment, which increases the capital from the inside of targets. Hence, the post-acquisition labour productivity level benefits from the combined effects from both the increased capital stock and sufficient intangible resources.

In columns (2) and (4) of table 5.6, the interaction terms of target's cash flow shows a significant and positive sign, which shows the reinforcement of high target's liquidity on its labour productivity through the completion of international M&A. This effect can be explained by the capital deepening through overseas markets. Specifically, this effect of reinforcement remains the same when the targets are acquired by those multinational firms with advantages in technological or managerial capabilities. This suggests that the combined effect on the target's labour productivity from the acquirer's technological advantages and the target's financial advantages will be reflected significantly.

From column (4) of table 5.6, the coefficients of interaction term between the target's total asset and completion of international M&A is a significant and negative sign, which means that the completion of international M&A will weaken the positive impact of the target's size on its labour productivity in the technologically advantage-oriented deals.

In contrast to no significant influence of international M&A type on firm's TFP level, horizontal cross border M&A shows a significant and positive sign for target firms in table 5.6, which means that the target's labour productivity in post-acquisition periods will be a high level in horizontal international M&A. This positive effect is confirmed in those deals where the acquirer expands its product market by relying on its technological or managerial advantages. This is because acquirers invest into the overseas markets in the same industry, and they will reallocate the resource of its target. Acquirers often cut the redundancy of departments or employees with same functions in target firms. This is supported by Harris (2009) who argues that when considering a substitution effect on domestic export activity, domestic production is more likely to be substituted at the intensive margin after horizontal M&A due to easy mobility of production across similar firms. Therefore, the ratio of capital over labour increases and the target's labour productivity is improved.

Table 5.6 The impact of cross border M&A on target's labour productivity

	All international deals						High intangible assets in acquirers						Low intangible assets in acquirers					
Model	(1)			(2)			(3)			(4)			(5)			(6)		
Dep: $TLabourPro_{t+1}$	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.
$Completed\_MA_t$	-2.27E+02	1.13E+02	**	-6.77E+02	2.70E+02	**	-1.68E+02	1.28E+02		-6.47E+02	3.01E+02	**	-4.87E+02	2.62E+02	*	-1.19E+03	7.65E+02	
$TGearingRatio_{t-1}$	5.62E-01	2.30E-01	**	-6.40E-01	6.26E-01		3.91E-01	2.58E-01		-3.32E-01	7.08E-01		1.13E+00	5.65E-01	**	-1.96E+00	1.83E+00	
$TGearingRatio\_MA_{t-1}$				1.39E+00	6.72E-01	**				8.28E-01	7.57E-01					3.43E+00	1.92E+00	*
$TCashFlow_{t-1}$	2.39E-03	2.02E-03		-7.27E-03	5.65E-03		2.97E-03	2.25E-03		-7.41E-03	6.51E-03		1.51E-03	5.01E-03		-1.25E-02	1.34E-02	
$TCashFlow\_MA_{t-1}$				1.11E-02	6.05E-03	*				1.19E-02	6.93E-03	*				1.67E-02	1.48E-02	
$TIntangibleAsset_{t-1}$	2.78E-03	3.55E-03		5.73E-03	9.61E-03		4.70E-03	4.10E-03		2.87E-03	1.12E-02		-4.08E-03	1.07E-02		1.32E-03	2.80E-02	
$TIntangibleAsset\_MA_{t-1}$				-3.02E-03	1.03E-02					2.68E-03	1.20E-02					-6.95E-03	3.03E-02	
$TTotalAsset_{t-1}$	-2.96E-06	5.64E-06		7.17E-07	6.07E-06		2.06E-06	7.38E-06		1.04E-05	8.46E-06		-1.39E-05	9.17E-06		-1.29E-05	9.26E-06	
$TTotalAsset\_MA_{t-1}$				-2.40E-05	1.60E-05					-3.24E-05	1.73E-05	*				-2.21E-05	8.39E-05	
M&A type																		
Vertical_MA	-2.22E+01	2.03E+02		-2.44E+01	2.03E+02		1.88E+00	2.20E+02		5.54E+00	2.20E+02		-7.73E+01	5.40E+02		-1.14E+02	5.42E+02	
Horizontal_MA	1.81E+02	8.20E+01	**	1.83E+02	8.19E+01	**	2.19E+02	9.05E+01	**	2.19E+02	9.04E+01	**	1.02E+02	2.11E+02		8.24E+01	2.12E+02	
Constant term	3.76E+03	7.76E+02	***	4.10E+03	7.97E+02	***	4.04E+03	8.43E+02	***	4.41E+03	8.68E+02	***	1.86E+03	2.21E+03		2.62E+03	2.31E+03	
Adj R-squaredd	0.0154			0.0171			0.0152			0.0166			0.0398			0.041		
Number of obs	3086			3086			2500			2500			586			586		

Note: 1. All regressions have controlled year dummy and NACE 2-digit industrial sector dummies.
2. ***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

The LR chi-squared value between column (1) and (2) of table 5.6 is 9.67 (p-value is 0.0464) based on the same observation numbers of the two models. This suggests that the baseline model is nested well in the interaction model for the whole cross border M&A sample. However, the LR chi-squared value between column (3) and (4) of table 5.6 is 7.61 (p-value is 0.1071), and the LR chi-squared value between column (5) and (6) of table 5.6 is 5.49 (p-value is 0.2402). They imply that the baseline models are not nested well in the interaction models for the two subsamples of high and low intangible assets in acquirers, although their adjusted R-squared values of interaction models show more explanatory power than those of baseline models for the two subsamples.

5.4.4 Effects of Cross Border M&A on Acquirer's TFP

The sample information for the model of M&A's impact on acquirer's post-acquisition TFP is summarised in the table below. From this table, all variables show positive mean values in the sample of 2,436 cross border M&A, while the variable of acquirer's cash flow has negative values for specific observations. Amongst these, the wide spread exists in such variables as acquirer's cash flow, intangible assets and total assets.

Table 5.7 Descriptive statistics for the impact of M&A on acquirer's TFP

Variable	Obs.	Mean	Std. Dev.	Min	Max
$ATFP_{t+1}$	2436	9.753105	1.714787	1.530208	13.95589
$Completed\_MA_{t}$	2436	0.910509	0.2855097	0	1
$AGearingRatio_{t-1}$	2436	85.86794	113.2086	0	989.3
$ACashFlow_{t-1}$	2436	423760.3	2135241	-5.43E+07	3.35E+07
$AIntangibleAsset_{t-1}$	2436	28479.58	19972.61	228	63487
$ATotalAsset_{t-1}$	2436	5321627	2.36E+07	122	7.96E+08
MAtype	2436	1.748358	0.9467861	1	3

The descriptive statistics is analysed by using the full model with control variables.

Table 5.8 reports the effects of cross border M&A on acquirer's productivity measured by TFP over the examined period, 2002-2011. In order to examine possible TFP change channels through which a completion of an M&A may influence firm's productivity, this research interacts the M&A completions dummy with key firm characteristics. Thus, two sets of static model estimation results are discussed below, which are a baseline model and a model with interaction terms. By calculating the difference of intangible assets between target and acquirer firms, the samples are also split into two subsamples that capture the deal where an acquirer

with high technology and managerial advantage acquires other targets and the deal that a target with complementary resource is acquired by other acquirers. The results of estimates for two samples are also reported in Table 5.8. The year and industry effects are controlled for both baseline model and interaction model.

Across model specifications, the key variable Complete_M&A shows significant and negative coefficients in column (1) and (2) of table 5.8. This suggests that the completion of cross border M&A will reduce the acquirer's TFP level comparing with the abandoned takeover rumours. Furthermore, controlling for other factors, column (3) and (4) of table 5.8 confirm significant and negative relationship between their TFP level and the completion of cross border M&A for the deals with high acquirer's intangible assets. This implies that acquirer cannot achieve the high TFP level after completing cross border M&A in the short term. This can be explained that the high technology and managerial skills of acquirers fail to exert their advantage in diversifying the international investment risk in overseas markets due to being unfamiliar with local information.

In column (1) and (2) of table 5.8, the significant positive signs of acquirer's cash flow demonstrate that the high liquidity of a firm can improve their productivity in international takeovers. This is consistent with the previous findings that less financial restrictions facilitate innovation development and hence boost higher productivity. Columns (3), (4) and (6) of table 5.8 suggest that cash flow shows positive impact on its TFP no matter that acquirer has high or low intangible assets. This can be explained that more cash holding could boost higher acquirer's productivity together with its intangible resources. Moreover, the financial advantage in liquidity can compensate for the disadvantage in lack of technological resource. Thus, acquirer can achieve TFP improvement from high liquidity.

In terms of acquirer's intangible assets in cross border M&A, column (1) and (2) of table 5.8 show that the acquirer's TFP improvement can benefit from its technology or managerial advantage and the completion of international M&A will reinforce this effect. Column (3) of table 5.8 also verifies this positive effect in the deals of product market oriented expansion. However, from column (6) of table 5.8, if an acquirer has no advantage in intangible resource, it will fail to reallocate target's complementary resource well and damage acquirer's productivity level itself. The completion of M&A will make that situation worse in the deals of complementary resource oriented expansion. This can be explained by Syverson (2011) and Du, et al. (2014) that the acquirer takes time to digest or establish intangible assets, especially when

it involves aspects such as research and development, brand development, good-will and other expenses with a long term effect. In general, the above findings are supported by the theoretical model of Nocke and Yeaple (2007). They suggests that the scope for productivity spill-over from the acquirer to the target firm is most pronounced if the acquirer operates in an technology-intensive industry, while productivity spill-over might even be negative if it operates in a marketing-intensive industry.

The total assets measure the size of a firm and provide significant positive signs for acquirers in cross border M&A. This means that big multinational firms are more likely to have high productivity levels. From columns (3) and (4) in table 5.8, firm size is positively related to acquirer's TFP level in the deals with intangible advantages oriented expansions, and the completion of M&A will reinforce the positive effect of big multinational firm's high technological and managerial advantage on acquirer's TFP level. One reason might be that, those more efficient or productive multinational firms are able to overcome the entry barriers to enter foreign markets and to be competitive in the host markets (Melitz, 2003). By contrast, columns (5) and (6) in table 5.8 show that large size of a firm will help increase the acquirer's TFP level in the expansions by seeking strategic assets, but the completion of M&A will impair this positive effect of large firm size in the takeovers where acquirers have a disadvantage in intangible assets. Therefore, although large multinational firms can penetrate into the host market to explore the strategic assets, their dependences on the strategic assets make the acquirers passive in their operations and the integration of intangible assets may be difficult, which leads to the decrease in acquirer's post-acquisition TFP level.

Table 5.8 The impact of cross border M&A on acquirer's TFP

	All international deals						High intangible assets in acquirers						Low intangible assets in acquirers					
Model	(1)			(2)			(3)			(4)			(5)			(6)		
Dep: $ATFP_{t+1}$	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.
$Completed\_MA_t$	-2.04E-01	1.17E-01	*	-4.99E-01	2.11E-01	**	-2.19E-01	1.26E-01	*	-4.67E-01	2.43E-01	**	-1.64E-01	3.74E-01		-4.90E-01	6.66E-01	
$AGearingRatio_{t-1}$	-2.18E-04	2.99E-04		-5.22E-05	1.14E-03		-1.86E-04	3.15E-04		4.68E-04	1.23E-03		-5.24E-05	1.06E-03		1.48E-03	4.42E-03	
$AGearingRatio\_MA_{t-1}$				-1.75E-04	1.17E-03					-6.77E-04	1.26E-03					-1.64E-03	4.52E-03	
$ACashFlow_{t-1}$	1.09E-07	2.10E-08	***	1.16E-07	5.22E-08	**	1.08E-07	2.19E-08	***	2.37E-07	8.66E-08	***	1.42E-07	9.46E-08		2.02E-07	1.06E-07	*
$ACashFlow\_MA_{t-1}$				-2.26E-09	5.61E-08					-1.30E-07	8.91E-08					5.44E-07	3.72E-07	
$AIntangibleAsset_{t-1}$	7.04E-06	1.63E-06	***	-2.10E-06	5.38E-06		8.31E-06	1.79E-06	***	9.29E-07	5.91E-06		-7.68E-06	1.55E-05		-8.74E-05	5.12E-05	*
$AIntangibleAsset\_MA_{t-1}$				1.01E-05	5.63E-06	*				8.22E-06	6.19E-06					9.65E-05	5.44E-05	*
$ATotalAsset_{t-1}$	9.24E-09	1.87E-09	***	5.59E-09	5.97E-09		8.20E-09	1.92E-09	***	-8.13E-09	9.26E-09		3.08E-08	1.12E-08	***	4.20E-08	2.54E-08	*
$ATotalAsset\_MA_{t-1}$				4.04E-09	6.21E-09					1.72E-08	9.43E-09	*				-6.98E-08	4.13E-08	*
M&A type																		
Vertical_MA	1.56E-02	1.80E-01		1.32E-02	1.80E-01		3.58E-02	1.87E-01		3.51E-02	1.87E-01		-9.92E-01	7.33E-01		-1.14E+00	7.43E-01	
Horizontal_MA	9.80E-02	7.13E-02		9.65E-02	7.14E-02		1.07E-01	7.62E-02		1.04E-01	7.62E-02		2.20E-01	2.34E-01		2.43E-01	2.33E-01	
Constant term	9.33E+00	9.62E-01	***	9.62E+00	9.79E-01	***	8.71E+00	1.16E+00	***	8.95E+00	1.17E+00	***	1.13E+01	2.15E+00	***	1.21E+01	2.23E+00	***
Adj. R-squaredd	0.1565			0.1567			0.1485			0.1493			0.2147			0.2256		
Number of obs.	2436			2436			2145			2145			291			291		

Note: 1. All regressions have controlled year dummy and NACE 2-digit industrial sector dummies.
2. ***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

The LR chi-squared value between column (1) and (2) of table 5.8 is 4.72 (p-value is 0.3177), and the LR chi-squared value between column (3) and (4) of table 5.8 is 6.23 (p-value is 0.1825). They imply that the baseline models are not nested well in the interaction models for the whole cross border M&A sample and the subsample of high intangible assets in acquirers, although their adjusted R-squared values of interaction models show more explanatory power than those of baseline models for the two subsamples. However, the LR chi-squared value between column (5) and (6) of table 5.8 is 9.50 (p-value is 0.0498). This suggests that the baseline model is nested well in the interaction model for the subsample of low intangible assets in acquirers.

5.4.5 Effects of Cross Border M&A on Acquirer's Labour Productivity

The sample information for the model of M&A's impact on acquirer's post-acquisition labour productivity is summarised in the table below. From this table, all variables show positive mean value in the sample of 3,285 cross border M&A, while the variable of acquirer's cash flow has negative values for some specific observations. Amongst these, the wide spread exists in such variables as acquirer's cash flow, intangible assets and total assets. The dependent variable of acquirer's post-acquisition labour productivity also has a wide distribution on its observation values.

Table 5.9 Descriptive statistics for impact of M&A on acquirer's labour productivity

Variable	Obs.	Mean	Std. Dev.	Min	Max
ALP_{t+1}	3285	3377.546	1743.169	1	6837
$Completed\_MA_{t}$	3285	0.9071537	0.2902611	0	1
$AGearingRatio_{t-1}$	3285	86.45544	120.8756	0	989.3
$ACashFlow_{t-1}$	3285	414127.8	2278171	-5.43E+07	4.64E+07
$AIntangibleAsset_{t-1}$	3285	28273.37	20093.1	228	63487
$ATotalAsset_{t-1}$	3285	4811573	2.21E+07	89	7.96E+08
MAtype	3285	1.724505	0.9406371	1	3

The descriptive statistics is analysed by using the full model with control variables.

The acquirer's labour productivity has been tested and reported in table 5.10. Table 5.10 reports the same formats to table 5.8, but it replaces the dependent variables with acquirer's labour productivity. It also considers the effect of cross border M&A and uses the cross border M&A completions dummy to interact with key firm characteristics. Similarly, two sets of static model estimation results and two subsamples estimations are discussed below. The year and industry effects are also controlled for both baseline model and interaction model.

Across the specifications in table 5.10, the variable Completed_MA shows significant and negative coefficients for acquirers in the cross border M&A. This means that the completion of M&A make acquirer's labour productivities low compared with the abandoned takeover rumours. This finding supports the aforementioned negative relationship between cross border M&A and acquirer's TFP level. Columns (3) and (4) in table 5.10 show that acquirer cannot achieve the high labour productivity level after completing international M&A in the deals with market-seeking intention. This means that the acquirers with advantages in technology and managerial capabilities have not performed well after the completion of M&A. According to the learning curve, Syverson (2011) also argues that firm needs to take a longer time to accumulate knowledge, experience and the capability to obtain productivity improvements. Although Lambert and Frenz (2008) conclude that there are substantial positive impacts of product innovation on productivity, Hall (2011) argues that the impact of innovation process is more ambiguous because, for instance, most innovations are process-related in the service sector.

From column (6) of table 5.10, the coefficient of interaction term between the acquirer's intangible assets and completion of international M&A is significant and negative. It means that the high intangible assets could not facilitate the acquirer to achieve high post-acquisition labour productivity with the channel of international M&A completions in the complementary resource oriented expansion. This could result from the difficulty in acclimatisation of the target's complementary resource in the new parent firms in the short term after the takeovers. No significant evidence is found to prove the effect of intangible assets on labour productivity for the target side.

In column (1) of table 5.10, the variable acquirer's total assets gives a significant and positive sign in cross border M&A, which suggests that the bigger the acquirer is, the higher its labour productivity level is in overseas takeovers. This finding confirms the effect of firm size on the acquirer's productivity in TFP measure. This can be easily explained that the large total asset means a high amount of firm's capital stock invested. This increases the ratio of capital over labour, which leads to high level of acquirer's labour productivity. Especially, the positive coefficients in columns (5) and (6) of table 5.10 with respect to the total asset show that bigger multinational firms incline to achieve higher labour productivity levels in the complementary resources-oriented deals. It can be explained that the ability and skill of bigger acquirer firms are more mature than smaller firms in integrating the complementary resources acquired from

the targets. They can allocate and apply the assets effectively to enlarge the total output volume, which improves their labour productivity levels after cross border M&A.

Table 5.10 The impact of cross border M&A on acquirer's labour productivity

	All international deals						High intangible assets in acquirers						Low intangible assets in acquirers					
Model	(1)			(2)			(3)			(4)			(5)			(6)		
Dep: $ALabourPro_{t+1}$	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.
$Completed\_MA_{t}$	-2.26E+02	1.07E+02	**	-3.05E+02	1.92E+02		-2.05E+02	1.16E+02	*	-3.70E+02	2.23E+02	*	-2.60E+02	3.18E+02		7.36E+02	5.47E+02	
$AGearingRatio_{t-1}$	3.27E-01	2.58E-01		7.37E-01	8.84E-01		3.59E-01	2.68E-01		6.47E-01	9.39E-01		3.05E-01	1.04E+00		4.13E+00	3.25E+00	
$AGearingRatio\_MA_{t-1}$				-4.49E-01	9.23E-01					-3.15E-01	9.78E-01					-4.07E+00	3.44E+00	
$ACashFlow_{t-1}$	3.71E-06	1.98E-05		-4.07E-05	4.55E-05		6.99E-06	2.17E-05		-1.26E-05	9.83E-05		-1.10E-04	7.43E-05		-1.10E-04	7.98E-05	
$ACashFlow\_MA_{t-1}$				5.52E-05	4.96E-05					2.19E-05	1.01E-04					2.45E-04	2.62E-04	
$AIntangibleAsset_{t-1}$	-4.47E-04	1.51E-03		-5.00E-03	5.00E-03		-1.13E-03	1.64E-03		-7.11E-03	5.56E-03		-8.20E-03	1.44E-02		6.12E-02	3.97E-02	
$AIntangibleAsset\_MA_{t-1}$				5.02E-03	5.25E-03					6.55E-03	5.82E-03					-7.96E-02	4.29E-02	*
$ATotalAsset_{t-1}$	3.30E-06	1.96E-06	*	8.67E-06	6.40E-06		2.72E-06	2.02E-06		4.55E-06	1.14E-05		1.82E-05	1.03E-05	*	2.47E-05	1.38E-05	*
$ATotalAsset\_MA_{t-1}$				-5.97E-06	6.67E-06					-1.84E-06	1.16E-05					-2.90E-05	3.07E-05	
M&A type																		
Vertical_MA	-9.88E+01	1.69E+02		-1.02E+02	1.69E+02		-1.03E+02	1.79E+02		-1.04E+02	1.79E+02		-6.19E+01	6.03E+02		-3.32E+01	6.14E+02	
Horizontal_MA	5.91E+01	6.70E+01		6.05E+01	6.71E+01		8.31E+01	7.12E+01		8.41E+01	7.13E+01		-1.63E+02	2.26E+02		-1.69E+02	2.25E+02	
Constant term	3.82E+03	7.54E+02	***	3.86E+03	7.71E+02	***	4.02E+03	8.19E+02	***	4.17E+03	8.40E+02	***	1.19E+03	2.17E+03		5.39E+02	2.23E+03	
Adj R-squaredd	0.035			0.0345			0.0324			0.0315			0.0316			0.0395		
Number of obs	3285			3285			2903			2903			382			382		

Note: 1. All regressions have controlled year dummy and NACE 2-digit industrial sector dummies.
2. ***, **, * denotes significance at the 1, 5, and 10 percent level, respectively.

The LR chi-squared value between column (1) and (2) of table 5.10 is 2.45 (p-value is 0.6536), and the LR chi-squared value between column (3) and (4) of table 5.10 is 1.47 (p-value is 0.8326). They imply that the baseline models are not nested well in the interaction models for the whole cross border M&A sample and the subsample of high intangible assets in acquirers. This can be confirmed that their adjusted R-squared values of interaction models show less explanatory power than those of baseline models for the two subsamples. However, the LR chi-squared value between column (5) and (6) of table 5.10 is 8.25 (p-value is 0.0828). This suggests that the baseline model is nested well in the interaction model for the subsample of low intangible assets in acquirers. This can also be confirmed by greater adjusted R-squared values of interaction models than those of baseline models for three samples.

5.4.6 Comparison in Goodness of Fit for Labour Productivity and TFP Models

The LR test is performed by estimating the log likelihoods of two models and comparing the fit of one model to the fit of the other. This research has used the LR test to compare differences among nested models. The diagnostics used by LR chi-squared and adjusted R-squared show whether the baseline models are nested in the interaction models. However, when considering which model can explain better the impact of cross border M&A completion on firm's productivity between the models with using TFP and those with using labour productivity, LR chi-squared and adjusted R-squared are unable to show the comparison of model fit because these two models are not nested each other. This research uses the AIC (Akaike Information Criterion) and the BIC (Bayesian Information Criterion) to test model fit and compare the goodness-of-fit for the both above models. The AIC is a measure of the relative quality of statistical models for a given set of data (Akaike, 1974). Hence, AIC provides a means for model selection. The BIC is closely related to the AIC. In statistics, the BIC is a criterion for model selection among a finite set of models; the model with the lowest BIC is preferred (Schwarz, 1978). When fitting models, it is possible to increase the likelihood by adding parameters, but doing so may result in over-fitting. Both BIC and AIC resolve this problem by introducing a penalty term for the number of parameters in the model; the penalty term is larger in BIC than in AIC (Aho et al., 2014). Therefore, both BIC and AIC statistics should be considered more carefully in the selection of specification.

Table 5.11 reports measures of model fit for effects of cross border M&A on target's labour productivity and TFP. The results from the likelihood ratio test from above several sections

have already indicated the more appropriate model from comparisons of corresponding baseline and interaction models. This section compares labour productivity interaction model (1) with TFP interaction model (2) for targets within the whole sample of international M&A. This section continues to compare labour productivity baseline models (3 and 5) with TFP interaction models (4 and 6) for targets within the two subsamples of high and low acquirer's intangible assets respectively. By using the same numbers of observations within the three samples, table 5.11 shows three positive values (176.875, 133.535 and 16.649) of BIC' difference between labour productivity and TFP models respectively. These results provide strong supports for the target's TFP models for the three samples.

Table 5.11 Comparisons of fit for regresses of target's post-M&A labour productivity and TFP

	All international M&A			High intangible assets for acquirers			High intangible assets for acquirers		
Dependent variable	Labour productivity	TFP		Labour productivity	TFP		Labour productivity	TFP	
Model:	(1) Interaction	(2) Interaction	Difference	(3) Baseline	(4) Interaction	Difference	(5) Baseline	(6) Interaction	Difference
N:	2012	2012	0	1616	1616	0	396	396	0
Log-Lik Intercept Only:	-18127.653	-3525.611	-1.46E+04	-14547.177	-2851.542	-1.17E+04	-3579.806	-671.024	-2908.782
Log-Lik Full Model:	-18060.509	-3370.03	-1.47E+04	-14487.385	-2710.207	-1.18E+04	-3526.942	-597.872	-2929.069
D:	36121.018(1907)	6740.059(1907)	29380.959(0)	28974.769(1516)	5420.414(1512)	23554.355(4)	7053.883(311)	1195.744(307)	5858.139(4)
LR:	134.288(101)	311.163(101)	-176.875(0)	119.584(96)	282.670(100)	-163.085(-4)	105.730(81)	146.304(85)	-40.575(-4)
Prob > LR:	0.015	0	0.015	0.052	0	0.052	0.034	0	0.034
R2:	0.065	0.143	-0.079	0.071	0.16	-0.089	0.234	0.309	-0.075
Adjusted R2:	0.015	0.098	-0.083	0.013	0.105	-0.092	0.037	0.119	-0.083
AIC:	18.057	3.454	14.603	18.054	3.483	14.571	18.242	3.469	14.773
AIC*n:	36331.018	6950.059	29380.959	29174.769	5628.414	23546.355	7223.883	1373.744	5850.139
BIC:	21614.689	-7766.269	29380.959	17775.002	-5749.803	23524.805	5193.663	-640.55	5834.213
BIC':	634.008	457.133	176.875	589.636	456.101	133.535	378.765	362.116	16.649

Source from the analysis by using the command of 'fitstat' in Stata package.

Table 5.12 reports measures of model fit for effects of cross border M&A on acquirer's labour productivity and TFP. Similar to target side, the results from likelihood ratio test from above several sections have also indicates the more appropriate model from comparisons of corresponding baseline and interaction models. This section compares labour productivity baseline models (1 and 3) with TFP baseline models (2 and 4) for targets within the whole sample of international M&A and the subsample of high acquirer's intangible assets respectively. This section continues to compare labour productivity interaction model (5) with TFP interaction model (6) for targets within the subsample of high acquirer's intangible assets. By using the same numbers of observations within the three samples, table 5.12 shows three positive values (309.436, 264.18 and 53.247) of BIC' difference between labour productivity and TFP models respectively. These results provide strong supports for the acquirer's TFP models for the three samples.

Table 5.12 Comparisons of fit for regresses of acquirer's post-M&A labour productivity and TFP

	All international M&A			High intangible assets for acquirers			High intangible assets for acquirers		
Dependent variable	Labour productivity	TFP		Labour productivity	TFP		Labour productivity	TFP	
Model:	(1) Baseline	(2) Baseline	Difference	(3) Baseline	(4) Baseline	Difference	(5) Interaction	(6) Interaction	Difference
N:	2289	2289	0	2018	2018	0	271	271	0
Log-Lik Intercept Only:	-20295.678	-4471.153	-1.58E+04	-17876.329	-3927.599	-1.39E+04	-2418.049	-542.719	-1875.33
Log-Lik Full Model:	-20202.786	-4223.543	-1.60E+04	-17794.858	-3714.038	-1.41E+04	-2362.819	-460.866	-1901.953
D:	40405.573(2191)	8447.087(2191)	31958.486(0)	35589.716(1922)	7428.075(1922)	28161.641(0)	4725.637(190)	921.731(190)	3803.906(0)
LR:	185.783(94)	495.219(94)	-309.436(0)	162.942(92)	427.123(92)	-264.180(0)	110.460(77)	163.707(77)	-53.247(0)
Prob > LR:	0	0	0	0	0	0	0.007	0	0.007
R2:	0.078	0.195	-0.117	0.078	0.191	-0.113	0.335	0.453	-0.119
Adjusted R2:	0.038	0.16	-0.122	0.033	0.152	-0.119	0.069	0.235	-0.166
AIC:	17.738	3.776	13.962	17.731	3.776	13.955	18.036	3.999	14.037
AIC*n:	40601.573	8643.087	31958.486	35781.716	7620.075	28161.641	4887.637	1083.731	3803.906
BIC:	23456.281	-8502.205	31958.486	20963.561	-7198.08	28161.641	3661.235	-142.671	3803.906
BIC':	541.389	231.953	309.436	537.165	272.985	264.18	320.903	267.656	53.247

Source from the analysis by using the command of 'fitstat' in Stata package.

Generally, the TFP model shows a better fit for both targets and acquirers based on the diagnostic analysis for goodness of model fit. Furthermore, TFP models show more significant variables compared with labour productivity models. There is no clear evidence to argue that the impact of foreign M&A depends on the different measure of firm's productivity according to the results of regressions. Nevertheless, TFP, as the result of diffusion in technological or organisational knowledge and economies of scale, can be the more direct measure to identify the causal impact of international acquisitions on firm's productivity performance.

5.5 Conclusion

This chapter examines the causal relationship between cross border M&A and firm's productivity using a rich micro dataset across the global market over the period 2002-2011. The effects of cross border M&A and firm-level characteristics on firm's productivity are assessed from the aspects of target side and acquirer side respectively. This research also employs two kinds of firm's efficiency measure, i.e. TFP and labour productivity, to compare the influence of choosing different productivity measures. The rumoured but uncompleted M&A are used as a control group to compose the dummy of M&A completions together with rumoured and completed deals. By using an M&A deal-level variable, the comparison of the impact on firm's productivity between the completed M&A and rumoured but abandoned M&A contributes to the above debate and the literature on the performance of cross border M&A.

The literature on firm's productivity after M&A wrestles with the unresolved debate, concerning whether M&A will improve firm performance. The effects of cross border M&A are assessed for both target and acquirer firms. From the view of acquirers, those firms who possess certain intangible advantages would like to attempt to expand their product markets via international takeovers. However, those firms who lack some intangible advantages would like to obtain the strategic assets from acquired firms via international takeovers. Based on these two points, cross border M&A are motivated by market seeking or strategic assets seeking incentives. This chapter separates cross border M&A into two subsamples, which include deals with high acquirer's intangible assets relative to the target's assets and deals with low acquirer's intangible assets relative to the target's respectively. The analysis is conducted with the two subsamples to test the impact of cross border M&A on firm's post-acquisition productivity The first subsample is used to examine whether the intangible advantages successfully transfers from acquirer to target in the product market-driven expansion. The second subsample is used

to examine whether acquirers effectively exploits the target's intangible assets in the strategic assets driven expansion.

Furthermore, this chapter will investigate the impacts of cross border M&A on firm performance by using the determinants of cross border M&A completions. Previous literature conducts such performance analysis by employing the characteristics of a likely target firm. However, the determinants of M&A completions can identify a firm in M&A, while the determinants of a likely target do not necessarily determine the completion of M&A. This is because other potential uncertain factors, e.g. the regulatory factor will affect M&A, but they do not influence whether a firm is chosen as a likely target. Therefore, the factors from previous research may be biased. The determinants of M&A completions should have different impacts on the firm performance compared with the characteristics of a likely target.

In this chapter, it tests the multinational status of firms on target's productivity to isolate firm's ownership advantages on its performance. The result from Chapter 5 shows that the increase in a target's productivity only takes place in the integration between MNEs in the completed cross border M&A. Compared with small domestic firms, large MNEs have more advantages especially in finance to get access to the advanced technology or resource across the world. Such updated technology or intangible capability enables MNEs to achieve high productivity. However, this chapter reports that the completion of a cross border M&A decreases the post-acquisition productivity level of targets and acquirers compared with the productivity of similar firms in takeover rumours. The information asymmetry across markets causes the difficulty in integration between targets and acquirers. This results in high transaction costs and accordingly low firm's productivity. This chapter compares two kinds of firm's efficiency measure, i.e. TFP and labour productivity. Its objective is to answer whether the performance of takeovers will depend on different productivity measures. The results about TFP measure reports are more significant coefficients than those about labour productivity measure. It is found that the increase in a firm's labour productivity is mainly caused by capital deepening rather than diffusion in technological or organisational knowledge and economies of scale. Therefore, TFP is regarded as more appropriate measure for a firm's productivity.

In particular, with the market seeking motive, this chapter proves that the completion of international takeovers will reduce the productivity for both targets and acquirers in terms of TFP level and labour productivity level. The foreign acquirers tend to expand their markets abroad based on their firm-specific advantages or successful operational experience. However,

some intangible assets such as advanced technology and brand name are not easy to transfer successfully. For example, the adaptation of technology in the host country will affect the knowledge transfer. Are there enough skilled workers in the job markets or are the standards of their skills enough to satisfy the requirement of using the new technology? Another example is the success of introducing a brand into the host country which depends on the reputation of such a brand or its investing firm. The perceptions of customers on the brand will gradually constitute the brand or firm reputation. From other aspects, if takeovers are initiated by irresponsible managers who only intend to enlarge their power or self-interest, such M&A are less likely to achieve productivity gains. Therefore, Cross border M&A are attempted with a potentially good intention in market expansion, but the difficulty in transfer of intangible advantages and the abuse of managerial discretionary power will lead to a low firm's productivity when takeovers are completed.

Apart from seeking markets, certain strategic assets including intangible resources are also important for firms because they can be used to formulate the firm's competitive advantages. This is especially true when strategic assets from outsides of firms show resource complementarities with firm's own assets; most firms will attempt all channels to obtain such assets including takeovers. Hence, the strategic asset seeking becomes another motive to support takeovers. However, the evidence from this chapter shows that the completion of international takeovers will reduce the target's labour productivity level in strategic assets seeking M&A. It is explained that M&A leads to the low competition in markets. This offers less incentive for firms to improve organisational innovation and internal efficiency, and accordingly leads to a low firm's labour productivity. Besides this, the ineffective reallocation of acquired complementary intangible resources decreases the target's productivity level after completing international M&A in the short term. The above results suggest that neither of these two motives behind cross border M&A could make firm's productivity level improve in the short term.

As for the effects of a firm's characteristics, a firm's high leverage level has been found to have a negative effect on its post-M&A efficiency. High leverage level means that firms have to make large amounts of payment due to the high proportion of debt. The limited disposable capital can be used in innovation to improve firm's productivity. Nevertheless, the results of this chapter show that firm's high liquidity, high level of intangible asset and large size will improve its post-M&A efficiency. These factors provide firms themselves with sufficient

capital, advantages in technology or brand, and the possibility of access to available resources. They facilitate firms to improve their productivity in the short term. Furthermore, horizontal international M&A shows positive target's labour productivity. It is explained that the expansion into the same industry often leads to substitution of domestic production in the host country. This will reduce the workforce in target firms and bring a capital deepening effect which increases firm's labour productivity.

It is argued that productivity and profitability are closely related. The productivity refers to the returns achieved by internal stakeholders. The increases in productivity may be beneficial to both the internal stakeholders (e.g. employees and managements) and the external stakeholders (e.g. shareholders and creditors). In contrast, the profitability refers to those returns available for external shareholders after subtracting the returns by internal stakeholders. The performance of involving firms in the cross border M&A is manifested either by the productivity improvement internally due to reinvestment or advanced management, or by the profitability improvement externally due to enlarged market share or reduced production costs. Therefore, after investigating the impact of cross border M&A on productivity, the author will continue to assess the impact on profitability in the next chapter.

Chapter Six: The Impact of Cross Border M&A on Firm-Level Profitability

6.1 Introduction

The findings from chapter five show a lower firm's productivity due to information asymmetry and reduced pressure of competition. It is argued that productivity and profitability are closely related. Driffield et al. (2013) indicate that a foreign firm's productivity may be affected to some extent by its operation scale rather than local conditions compared to domestic firms. However, profitability differences may have a different pattern in consideration of various market conditions and the institutional environments. Some of improved productivity will result in higher profitability in M&A activity, yet at the same time international takeovers may have an adverse effect on profitability.

According to Girma et al. (2006), productivity refers to the returns achieved by internal stakeholders. The change in productivity will affect both the internal stakeholders (e.g. employees and management) and the external stakeholders (e.g. shareholders and creditors). In contrast, profitability refers to those returns available for external stakeholders after subtracting the returns by internal stakeholders. They believe that the impact of takeovers on internal and external returns may differ. Foreign acquisitions sometimes will lower the extent of competition in the host market (Schiffbauer et al., 2009). The less pressure in competition from markets will reduce firm's productivity. At the same time however, due to the reduced competition, some firms will obtain strong monopoly power to reap the abnormal return which means they achieve a high profitability. In contrast, for some firms, efficiency loss is related to access to narrow markets and less resources, which generates temporary profitability loss (Driffield et al., 2013). Accordingly, the relationship between foreign takeovers and firm financial performance is complex. The impact of international takeover on profitability is more varied compared with its impact on productivity.

Further, Driffield and Du (2007) argue that foreign takeover has a significant impact on productivity, but a smaller effect on profitability. Based on the findings in the previous chapter, the drop in internal efficiency due to information asymmetry will increase transaction and agency costs. Thus, it is questioned whether the weakened internal productivity will be transformed into lower profitability. Following the conclusion in chapter 4 about the efficiency seeking motive behind the international M&A completions, this chapter continues the empirical work to explore the external returns of M&A by investigating the impact of M&A on firm

performance in terms of profitability. In order to do so, the aim of this chapter is set to examine the profitability performance after M&A for both targets and acquirers and the influence factors to profitability at the firm level. The use of the rumoured M&A as a control group can address the sample selection issue when consider pre-acquisition profitability in the M&A. Some foreign firms will perform better than domestic firms in the takeovers due to their possession of some firm-specific advantages. The author compares the effects of cross border M&A with inclusion of pre-acquisition profitability and exclusion of it respectively. This will be discussed specifically in the later section.

Most profitability studies developed hypotheses from managerial theories of the firm. It might be expected that the profitability of merged firms would be more likely greater than the sum of the firms involved as independent entities under an efficient market for M&A, *ceteris paribus* (Meeks, 1977). However, such a research method can only indirectly test the disciplinary hypothesis for corporate control, because profit improvements could result from enhanced market power rather than improved management. It is unanswered whether the takeover improved the profitability of involving firms through replacing the management. Furthermore, the synergetic effects may be attributed to the apparent performance superiority of the multinational firms. Thus, it is worthy of investigating whether acquiring a profitable firm will enhance the profitability for the involving firms. To achieve the above two objectives, the research divides the M&A deals into two subsamples, which are deals with high profitable targets and deals with low profitable targets. This study uses the former subsample to examine the synergy effect of M&A, while it uses the latter subsample to examine the function of M&A in managerial discipline.

There are several contributions in this study. Firstly, both completed cross border M&A deals and rumoured but abandoned deals are incorporated into the analysis for assessing the post-M&A performance. The abandoned M&A rumour will be used to provide a control group in which firms experience a potential takeover but without ownership change. Further, the use of rumour data directly offers a merit in constructing the comparison group compared with the propensity matching techniques. This will be addressed in the later section. Secondly, this research will detect the post-takeover profitability by differentiating the pre-takeover profitability of targets. This division is to examine the synergy effect and disciplinary effect of M&A respectively. Thirdly, most previous literature assesses the post-M&A performance from either acquirer side or target side. This study exploits explanations from both sides. Fourthly,

the pre-acquisition profitability information will be employed to explain profitability change due to its impact on post-M&A performance. A panel design allows for the inclusion of year dummies to control for cyclical factors.

The chapter is organised as follows. Section 6.2 reviews the theories and *ex-post* M&A profitability studies and discusses the role of international M&A in the growth of multinational enterprises. Section 6.3 describes the data statistics, presents some sample characteristics and the econometric methodology. Section 6.4 generates some analysis of the data, and then discusses the results. A brief conclusion follows in section 6.5.

6.2 Theory and Profitability Studies

6.2.1 Post-M&A Profitability of Targets and Acquirers in International Takeovers

From a theoretical perspective, there are various reasons for expecting enhanced profits in combined firms. Above all, the traditional international business or finance literature suggests that market power and risk diversification will result in a positive relationship between international takeovers and profitability. That is, the global diversification of business and increased market power of the MNEs stemming from M&A, tend to reduce business operational costs (Eiteman et al., 2006). Likewise, developed from corporate control theory, the managerial discipline hypothesis also produces the prediction of enhanced profit prospects for acquired firms. It is assumed that M&A are motivated to reinforce managerial control over entrenched managers who are more interested in their own benefit.

In contrast, there are some explanations provided in the literature to support a negative relationship between international M&A and profitability. To start with, Bellak (2004) reviews a number of studies and summarises that a major objective of multinational enterprises is to curtail their tax burden. This provides the reason why foreign owners are often willing to accept lower profit margins in their overseas subsidiaries. From the other aspect, the capital costs of internal funds generated within firms are relatively low compared with those of the external funds raised outsides the business. Accordingly, foreign affiliates tend to exploit re-invested profits, resulting in a decline in their profitability. Although the literature with respect to foreign M&A and productivity is relatively well-established, the relationship between the international M&A and post-takeover profitability has been less extensively examined.

In the research of Norback and Persson (2008), they also develop the market risk argument to explain why the lower profitability is expected to associate with international M&A. That is because the investment via M&A may be riskier than that via green-field start-up. In addition to the traditional theories, Norback and Persson have also introduced importance of other concepts in facilitating international M&A. For instance, they propose the complementarities in assets between the foreign acquirer and the domestic target will affect the M&A performance. In their theoretical model, it is illustrated that a high level of complementarities in assets between the foreign acquirer and the domestic target will increase the likelihood of M&A. However, there might be a decrease in the acquirer's expected profits, and thus foreign acquirers may not benefit from improvement in post-M&A profitability level when acquiring the most suitable takeover targets. This is because the complementarities between domestic and foreign assets provide an incentive to lift upward the equilibrium acquisition price (measured as a non-acquiring firm's willingness to pay in M&A). Beside, the complementary assets are usually intangible, which are difficult to be accurately valued. Therefore, in equilibrium, high acquisition price compress the acquirer's product market profit margin especially when domestic assets become more strategically valuable for the acquirer.

An alternative argument might be that these *ex-post* profitability studies have been concentrated on a simplistic view of the disciplinary mechanism and ignore the influence of takeover rumour. A rumour on taking over another firm can be regarded as a kind of threat to the management of the targeted firm. In order to discipline the managements effectively, the takeover rumour sometimes has an enough credible potency. It does not necessarily have to be realised in the form of actual takeovers. For example, Pickering (1983) and Holl and Pickering (1988) suggest that although completed M&A might exhibit a tendency to have adverse impacts on profitability, unsuccessful bids can have positive impacts on the performance of both targets and acquirers following abandonment of a bid. Thus the threat of takeover can be concluded as a stimulus to managerial performance, even if completed M&A deal has a general tendency to decline in performance.

More recent research on the issues raised by rumoured M&A tend to have been conducted with event study methodology and share price data (Antweiler and Frank, 2004; Clarkson et al., 2006; Lachapelle, 2011; Wortche and Nguyen, 2011). Their results show abandoned targets making and sustaining positive returns, with rather more mixed results for acquirers after a rumour. Clarkson et al. (2006) conclude that these results are in line with market efficiency hypothesis,

where the stock market re-evaluates the targets based on the new information released by acquirers. Bradley et al. (1983), however, support a synergy explanation for the potential of target gains in abandoned mergers. Regardless of the source of gains, overall, these results offer support for the potency of takeover rumour and thus for the beneficial effect of the market for corporate control. Although the encouraging role of potential takeover may improve a firm's profitability, the complexity of M&A operation could make the firm's profitability decline during the implementation of actual acquisition.

Empirically, Manson et al. (1993) compare target and acquirer firms' operating cash flows between five years prior to M&A and five years after M&A. They study the impact of pre-M&A cash flow on post-M&A cash flow and report significant and positive gains. Similar findings of post-M&A improvements in cash flow and operating profits are supported by the US studies of Weston and Masinghka (1971), Switzer (1996), Linn and Switzer (2001) and Ghosh (2001). Powell and Stark (2005) also report positive increase in cash flow with the UK evidence. Additionally, Fukao et al. (2006) examine firm level sample in 1994-2002 and conclude that foreign M&A bring more significant improvement on target firms' profitability than domestic M&A.

However, Singh (1971) employs a measure of profitability corrected for the average industrial rate of return and tests a sample of 77 mergers over the period 1955-60. Using this measure, he identifies that the post-merger profitability declines in around half combined firms. Utton (1974) mentions that firms which intensively merge with others have achieved significantly lower profitability compared with the internally grown firms. Meeks (1977) enlarges the population of sample (233 mergers from 1964 to 1972) and demonstrates similar results that more than a half of acquiring firms suffered a significant post-merger decline in profitability for a period of up to seven years. Mueller (1980) illustrates that merged firms experience a profits decline in three year after M&A with a sample for the period 1962-79 in the US. By concentrating on 354 UK listed firms for the period 1967-74, Kumar (1984) suggests that firm's post-merger profitability has a generally declined tendency for a period up to seven years after merger. His results are in line with those earlier studies. Ravenscraft and Scherer (1987a) report the decline in the profitability after M&A with the US data from 1975 to 1977. Similar evidence is also found in the research of Clark and Ofek (1994), Dickerson et al. (1997), Gugler et al. (2003) and Martynova et al. (2007).

From the empirical evidence, most positive findings about profitability are supported by using

cash flow measure, while other profitability measures such as ROE, ROA, sales and profit margin almost always show the tendency of decline after M&A. Nevertheless, it is doubtful that the profitability of post-M&A could be reflected truly hidden by cash flows due to the drawback of accounting data (Chatterjee and Meeks, 1996). It is also believed that the increase in cash flow may not result from the improvement of profit. It could be caused by the disposal of some unwanted assets within the company or written off on the previous non-receivable credit. Based on the arguments and evidence above, the increased transaction price due to the overestimated complementary assets compresses the profit generated from a takeover and makes the both target and acquirer unprofitable after the M&A. Besides, the market for corporate control suggests a takeover threat may spur management to improve the profitability through takeover rumours. Thus, hypothesis 1 can be derived as follow.

Hypothesis 1: The effect of a cross border M&A is to decrease the post-acquisition profitability of targets and acquirers compared with the profitability of similar firms in takeover rumours.

6.2.2 The Synergy Effect on Post-acquisition Profitability

There are also two competing theories predicting the characteristics of the likely target firms in international M&A. The characteristics of the likely target firms include profitable firms and unprofitable firms, which are motivated by synergy effect and disciplinary effect. The takeovers with the motive of disciplinary effect will be addressed in the next section. The takeovers with the motive of synergy effect will be discussed below.

In general, the first argument postulates that profitable firms are more likely to be acquired, which is consistent with a synergy hypothesis. It means the combined value of the new venture created by M&A exceeds the sum of the values of the individual firms. Thus, when well performing firms are being acquired, the newly merged ventures are expected to benefit from a further improvement in post-M&A performance due to the synergy effect. There is some recent evidence that foreign acquirers take over more profitable domestic targets. For example, by analysing the differences between domestic and foreign takeovers in Korea during the post-liberalisation period, Freund and Djankov (2000) show that target firms are usually larger, more profitable, with lower debt, belonging to high value - added sectors. Similarly, Lipsey and Feliciano (2002) study foreign acquisitions in the US during a ten - year period, and find that more profitable firms attract foreign acquisitions.

It is assumed that foreign acquirers introduce their certain largely intangible assets which can offset any advantages possessed by domestic firms. The technological knowledge, brand name capital and organisational capabilities are frequently listed as advanced intangible assets in the literature on multinational firms. According to Dunning's (1988) internalisation theory of multinational expansion, an inward transfer of inputs in these intangible assets is expected to increase the volume or value of outputs following takeovers. However, it is viewed to be problematic in transferring the technological knowledge and brand name recognition or reputation across markets. The transfer of technological knowledge has suffered from lots forms of failure. The licensing of brand name exposes a danger of externalities due to sharing an intangible asset (reputation) (Geroski and Gregg, 1997). All above negative relationships appear to be connected with international M&A. For example, Caves (1996) implies that high R&D and advertising intensities involving in foreign acquisitions suffer from some difficulties when surveying Japanese firms entering the US.

Empirically, based on domestic and foreign M&A in Japanese manufacturing firms from 1994 to 2000, Fukao et al. (2005) imply that buying firms with higher profit rates can bring a larger and quicker growth of post-acquisition profitability. In the results of Chari et al. (2009), profitable targets are found to be larger in size (measured as sales, total assets and employment), and their profitability increase averagely by 16 per cent in the five years following M&A.

On the contrary, Herman and Lowenstein (1987) provide negative evidence with examining 56 hostile takeovers during the period 1975-83. They point out that target firms are more profitable prior to acquisition and smaller than acquiring firms on average. Moreover, Ravenscraft and Scherer (1989) analyse the Federal Trade Commission line-of-business data on 251 mergers in the US during the period 1968-74. They find that target firms are more profitable prior to mergers and most mergers impair profitability. Furthermore, they indicate a bias exists that the smaller targets relative to acquirers the more profitable targets are. It is potentially important evidence that the line-of-business data captures takeovers of large listed firms acquiring unlisted ones. Listed firms are included in most studies' samples of targets and acquirers, thus there is a sample selection bias.

Based on the arguments and evidence above, foreign firms invest into the profitable local firms in other countries via M&A with the intention to achieve synergy effect. However, the transfer of firm-specific advantages may be problematic and it is difficult to integrate such advantages as brand name recognition and technological knowledge. Thus, the second hypotheses can be

derived as follow.

Hypothesis 2: The effect of a cross border M&A is to decrease the post-acquisition profitability of targets and acquirers compared with the profitability of similar firms in takeover rumours in cases of acquiring profitable targets.

6.2.3 The Disciplinary Effect on Post-acquisition Profitability

Countering the first view in the previous section, the second argument suggests that foreign firms are more likely to buy unprofitable or poorly-run target firms to replace the poor management. In accordance with the managerial discipline hypothesis, this view argues that foreign M&A happen because managers desire to maximise their own achievements rather than company profits. Therefore, unprofitable firms are more likely to be overtaken, poor management is replaced, and surviving firms will achieve a higher post-acquisition performance (Jensen, 1988).

However, according to Tichy (2001), the industrial economists cannot appreciate the role of M&A in the effectiveness of allocating spare resources via best management after examining the data from balance sheet. Similarly, it is assumed that some foreign acquirers would like to bring to domestic targets with competitive advantage such as superior organisational routines and practices. Transferring these intangible resources makes the success rate of international M&A lower. For instance, Bassett (1986) indicates that Japanese manufacturers have developed superior logistical systems such as ‘just-in-time’ inventory planning, work practices including team working and task flexibility, and industrial relations arrangements including single-union bargaining and no-strike agreements. These intangible resources show advantages in particular Japanese industries such as motor vehicles. Nevertheless, the inadaptability is revealed when Japanese intangible resources are applied in other countries especially under distant culture context (Carmichael, 1992).

Empirically, more positive results are supported by Cosh et al. (1980). They stress that acquiring firms improve significantly post-M&A profit. They also report that target firms are distinctly less profitable than their matched control group prior to M&A. This result accords with the view of corporate control hypothesis, in which the strong acquire the weak. In contrast, Herman and Lowenstein (1987) report over half the targets underperform their eventual acquirers prior to acquisition when using matched acquirers and targets. Particularly, in their

results, the hostile takeovers occurring in the late 1970s generally improve performance while the profitability declines after merger in the early 1980s. They attribute determinants of successful takeovers to the institutional factors and time-specific phenomena.

In addition, Ravenscraft and Scherer (1989) also show an overall decline in post-merger profitability. They explain that the complex organisational structures and lessened managerial competence lead to high incidence of divestiture following acquisition. The negative operating income after acquisition results in the tendency of sold-off units. They do not support the management discipline hypothesis that target firms are underperformed prior to acquisitions. However, in an earlier study, Ravenscraft and Scherer (1987a) find that target firms are slightly lower than average in performance and an insignificant post-acquisition performance by examining 96 tender offers during the period 1950-76. In another study of the same year, Ravenscraft and Scherer (1987b) report a statistically significant decline on post-merger profitability with using a non-acquiring control group and 471 mergers over the same period.

Based on the arguments and evidence above, foreign firms often attempt to discipline the poorly performed managements through the market for corporate control. However, such M&A may not improve involving firm's profitability because some competitive advantages such as superior organisational routines and practices may not be suitable for the acquired targets. Meanwhile, M&A has already generated significant purchasing costs to the acquirers when M&A is completed. Thus, the third hypotheses can be derived as follow.

Hypothesis 3: The effect of a cross border M&A is to decrease the post-acquisition profitability of targets and acquirers compared with the profitability of similar firms in takeover rumours in cases of acquiring unprofitable targets.

6.2.4 The Impact of Pre-M&A Profitability on Post-M&A Profitability

In terms of the impact of cross border M&A on post-acquisition profitability, some literature finds that foreign acquirers choose more profitable domestic targets (Freund and Djankov, 2000, for Korea in the post-liberalisation period; Lipsey and Feliciano, 2002, for the US; Fukao, et al., 2005, for the Japanese manufacturing sector; Chari, et al., 2009, for the US with emerging markets investors). Given such evidence, most research adopts the difference-in-difference matching approach to control the potential selectivity bias. For example, after controlling for the sample selection problem, Fukao et al. (2006) show more significant improvement in

target's profitability in international takeovers than that in domestic takeovers. Similar evidence is also identified by Chari et al. (2009) who finds that investors from emerging markets acquire large the US target firms and improve their profitability by, on average, 16 per cent. Whilst, Bellak et al. (2006) argue that the growth in profitability is more significant for buying unprofitable targets than buying profitable ones.

Harris (2009) suggests that the international M&A are found to be affected by the pre-acquisition performance of firms. According to Bellak et al. (2006), the pre-acquisition characteristics could affect performance in the future, so pre-performance is linked to explanations of possible profitability after an M&A is completed. They find that the level of initial pre-acquisition profitability has positive impact on post-acquisition profitability level. The pre-acquisition profitability can represent the earning ability of firms prior to the takeovers. It is argued that the previous earning ability of firms will carry on in the post-acquisition stage. Besides, from the perspective of learning curve, managements will accumulate their ability in earning based on their prior successful experience (Very and Schweiger, 2001).

In the large scale the UK study, Dickerson et al. (1997) examined the sample of 613 acquirers from 1948 to 1977. They utilise the profitability 'persistence' approach from Geroski (1988), which involved using a lagged profitability measure of the dependent variable as an explanatory variable, together with measures for business cycle effects, leverage, industry, size and growth. Their results are robust to a variety of changes in specification, and suggest that acquirers experience lower performance. However, their study has not provided any interpretation for the poor performance. Based on German data, Köke (2000) indicates that there is little ex post improvement in financial performance in acquired firms. Therefore, the fourth hypothesis can be derived as follows:

Hypothesis 4: The higher the pre-M&A profitability level of targets and acquirers, the higher their post-M&A profitability level.

MNEs are generally found to show superior performance than their domestic counterparts. This performance advantage stems from MNE theory which defines that MNEs are endowed with specific comparative advantages such as a superior production technology or organisational superiority (e.g., Caves, 1996; Dunning, 1988; and Casson, 1987). Foreign multinational corporations also often bring with their ownership advantages such as higher capital intensity, which results in a rise in post-M&A profit margins via growth in (labour) productivity (Bellak,

2004). Therefore, the argument could bring the fifth hypothesis.

Hypothesis 5: MNEs transfer their ownership advantages to domestic targets, which increases post-M&A profitability level in target firms.

6.3 Data and Method

6.3.1 The Construction of Control Group

It is important to construct a consistent estimate for the average performance of firms had they not been involved in M&A. The performance of the non-acquirers or non-targets does not offer a good estimate of the counterfactual case in non-experimental settings because of sample selection problems. The selectivity bias exists because firms select themselves into the different groups based on characteristics that might also affect the measured performance. To solve the problems in the counterfactual situation, researchers use propensity score matching techniques to construct a comparison group. The goal of the matching procedure is to match non-involving firms with involving firms in a similar range of observable characteristics. The expected outcome of this comparison group produces a valid construction of the counterfactual outcome under the conditional independence assumption. The conditional independence assumption requires the potential outcome to be independent of the treatment assignment given the set of observable control variables that are not influenced by the treatment. It is assumed that selection into treatment is on observable characteristics only and that unobservable variables do not influence simultaneously the treatment assignment and the outcome determination. This assumption is not testable, but the inclusion of a wide range of covariates that are suggested by theory helps to justify the validity of the approach (Caliendo and Kopeinig, 2008).

In terms of impact of foreign M&A on the post-acquisition profitability, and given the evidence generally found on buying profitable targets, most recent studies have taken into account (potential) selectivity bias by adopting a difference-in-difference approach in conjunction with propensity score matching techniques. For instance, Fukao et al. (2006) employs both unmatched and matched samples to analyse the target firms' profitability in foreign and domestic acquisitions. However, one potential concern with propensity matching estimation is that the decisions of firms in the comparison group might be influenced by the involving firms' decision to conduct M&A. The approach is valid only if the stable unit treatment assumption holds, which means if the there is no significant general equilibrium effects. If the involving

firms affect performance of competitors in the comparison group thanks to strategic interaction, the results might overestimate or underestimate the effect of cross border M&A.

A further limitation of matching approach is that the control group of non-target population generated by matching approach just provides the suspected targets. These suspected targets are plausible but fallacious cases because they only have certain similar range of observable characteristics with the actual target firms. They are even irrelevant firms who are never selected into the consideration of the M&A. However, the control group from rumoured but uncompleted M&A in this study provides the potential involved firms. Not only do they have the similar range of observable characteristics with the actual involving firms, but also they are even potential involving firms who just did not complete the deals due to some reasons.

As a potential but abandoned international M&A, the rumoured but uncompleted M&A deals naturally provide a feature of counterfactual population, which can overcome the potential selective bias. In this study, rumoured but uncompleted M&A deals compose a comparison group. They provide the similarity of in-range of completed deals characteristics. The profitability change after an uncompleted rumour offers a valid construction of the counterfactual outcome. The profitability of targets or acquirers under the rumour is independent of that in the actual completed M&A. Thus, the control group of rumoured data satisfies with the conditional independence assumption mentioned above. Therefore, there is no necessity to use the propensity score matching techniques in this study. This study employs directly rumoured data as comparison group rather than propensity matching techniques.

6.3.2 Variable Description

The firm's information was picked to proxy a number of attributes or dimensions of economic performance, financial position and deal status, including: profitability, cash flow, corporate financial leverage, intangible asset, firm size, multinational status and completion of M&A. In this research, gearing ratio is used to measure corporate financial leverage. The profitability is measured by profit margin. Total assets of firms are employed to measure firm size. In this research, several control variables will be used such as cross border M&A type, year and industry. Firm's multinational status is denoted to be 1 is a firm is MNE and to be 0 if it is non-MNE. The profit margin of targets and acquirers in one year after M&A or rumour (t+1) is used for the dependent variables. Other independent variables use the firm information in one year before the M&A or rumour (t-1) is recorded. The reason of that is to obtain all complete

information on firms for a whole financial year. The key independent variable is the dummy of whether an M&A is completed or just rumoured and abandoned later. The descriptions for all variables are listed in table 6.1 below.

Table 6.1 The definitions of independent and dependent variables

	Variable description	Variable name	Note
Target	$ProfitMargin_{t+1}$	TPM	(Profit before tax / Operating revenue) * 100% in one year after M&A or rumour
	$ProfitMargin_{t-1}$	TPM	(Profit before tax / Operating revenue) * 100% in one year prior to M&A
	$Cashflow_{t-1}$	TCF	Profit for period + Depreciation prior to M&A
	$GearingRatio_{t-1}$	TGEAR	((Non-current liabilities + Loans) / Shareholders funds) * 100% prior to M&A
	$TotalAsset_{t-1}$	TTA	Fixed assets+ Current assets prior to M&A
	$IntangibleAsset_{t-1}$	TIA	All intangible assets such as formation expenses, research expenses, goodwill, development expenses and all other expenses with a long term effect prior to M&A
	MNE status	T_mne	Whether target firm is MNE or not
Acquirer	$ProfitMargin_{t+1}$	APM	(Profit before tax / Operating revenue) * 100% in one year after M&A or rumour
	$ProfitMargin_{t-1}$	APM	(Profit before tax / Operating revenue) * 100% in one year prior to M&A
	$GearingRatio_{t-1}$	ACF	((Non-current liabilities + Loans) / Shareholders funds) * 100% prior to M&A
	$Cashflow_{t-1}$	AGEAR	Profit for period + Depreciation prior to M&A
	$TotalAsset_{t-1}$	ATA	Fixed assets+ Current assets prior to M&A
	$IntangibleAsset_{t-1}$	AIA	All intangible assets such as formation expenses, research expenses, goodwill, development expenses and all other expenses with a long term effect prior to M&A
	MNE status	A_mne	Whether acquirer firm is MNE or not
	MA_{it}	MA	Dummy of whether the M&A is completed or just rumoured but uncompleted.
	$MAtype_{it}$	Vertical Horizontal	Dummy of horizontal, vertical and conglomerate M&A
	Year Dummies		Year from 2002 to 2011
	Industry Dummies		2-digit NACE Code

Source from Orbis and Zephyr

6.3.3 Estimation Model

The baseline model is used for assessing impacts of cross border M&A on target's and acquirer's profitability, respectively, takes the following form:

$$PM_{it+1} = \beta_0 + \beta_1 MA_{it} + \beta_2 PM_{it-1} + \beta_3 X_{it-1} + \beta_4 MAtype_{it} + v_t + v_j + \varepsilon_{it} \quad (6.1)$$

where PM_{it+1} refers to the profit margin of targets or acquirers one year after cross border M&A being completed or rumoured. This ensures that the firm's financial information is complete for a whole financial year. The key variable is MA_{it} which refers to the dummy of cross border M&A completions or not. It is a binary variable, capturing the M&A's status, which takes value 1 if the M&A's status of testing firm is rumoured and completed, and takes value 0 if its M&A's status is rumoured but uncompleted. Testing if this dummy is statistically significant in affecting firm's profitability will show the evidence for the role of cross border M&A completions, controlling for other factors and firm unobserved heterogeneity. The main interest of this research is whether firm's profitability will be influenced after the completion of a cross border M&A deal comparing with the rumoured but uncompleted deal.

PM_{it-1} refers to the profit margin of targets or acquirers one year before M&A being completed or rumoured. If a firm is ever in a profitable position, it is likely that it possesses firm specificity that is related to the factors of high profitability, and hence may help the firm become profitable again in the future. This lagged profit margin variable in the model captures the firm's profitability situation prior to the M&A. It makes the estimation become a dynamic model controlling for the past position of firm's earning ability. Furthermore, X_{it-1} is the vector of target's characteristics or acquirer's characteristics in terms of leverage, liquidity, intangible resources and size measure. Sometimes, the firm's financial information is incomplete during the year of M&A announcement or completion because the M&A event may occur in the middle of the firm's financial year. Thus, all variables in this vector are lagged by one year in order to obtain the firm's complete information for a whole financial year. The control variable is $MAtype_{it}$. It stands for the type of M&A which includes vertical, horizontal and conglomerate M&A. Finally, the error term is made up of a time-specific component (v_t), a two-digit industry-specific component (v_j), and an idiosyncratic error term ε_{it}. These terms control for year and industry respectively.

Conditional on effects of M&A completions on the post-M&A profitability level, the research further searches for the potential moderating roles of M&A completions dummy on other explanatory variables in shaping the firm's profitability level. To this end, equation 6.1 is modified by allowing parameter heterogeneity in M&A completions:

$$PM_{it+1} = \beta_0 + \beta_1 MA_{it} + \beta_2 PM_{it-1} + \beta_3 X_{it-1} + \beta_4 PM_{it-1} * MA_{it} + \beta_5 X_{it-1} * MA_{it} + \beta_6 MAtype_{it} + v_t +$$

$$v_j + \varepsilon_{it} \qquad (6.2)$$

By interacting MA_{it} with firm characteristics, equation 6.2 examines the profitability effects due to completion of M&A indirectly through various firm characteristics differences. This research also looks at the subsample of deals with acquirers having high profit targets and deals with acquirers having low profit targets. This separation will answer the effect of M&A event on firms' profitability in the deals where an acquirer firm wishes to acquire a profitable target for synergetic gains and in the deals where an acquirer firm wishes to acquire an unprofitable target for the discipline of bad management.

The regressions are estimated separately with inclusion of pre-acquisition firm's profitability and exclusion of that for the cross border M&A deals. The latter estimations which are static models are used to construct a comparison with the former dynamic ones. This can illustrate whether the pre-acquisition firm's profitability controls for the past status about the firm's earning ability prior to takeovers. Although the static model does not incorporate the dynamic nature of the continuity on firm's earning ability, it can lends robustness to the previous results in this study. Therefore, the estimations are conducted with the same specifications to equation 6.1 except for the term of PM_{it-1} for targets and acquirers respectively as follows:

$$PM_{it+1} = \beta_0 + \beta_1 MA_{it} + \beta_2 X_{it-1} + \beta_3 MAtype_{it} + v_t + v_j + \varepsilon_{it} \qquad (6.3)$$

The similar specification to equation 6.2 is also conducted with interaction terms as follows:

$$PM_{it+1} = \beta_0 + \beta_1 MA_{it} + \beta_2 X_{it-1} + \beta_3 X_{it-1} * MA_{it} + \beta_4 MAtype_{it} + v_t + v_j + \varepsilon_{it} \qquad (6.4)$$

In order to assess whether there is a difference in ownership advantage between MNEs and non-MNEs, this research will also estimate the impact of firm MNE status on target's post-M&A profitability level by modelling four groups of completed cross border M&A deals. They are four types of deals with MNE acquirer, non-MNE acquirer, MNE target and non-MNE target respectively. The specifications are constructed as follow:

$$PM_{it+1} = \beta_0 + \beta_1 T\_mne + \beta_2 PM_{it-1} + \beta_3 X_{it-1} + \beta_4 MAtype_{it} + v_t + v_j + \varepsilon_{it} \qquad (6.5)$$

$$PM_{it+1} = \beta_0 + \beta_1 A\_mne + \beta_2 PM_{it-1} + \beta_3 X_{it-1} + \beta_4 MAtype_{it} + v_t + v_j + \varepsilon_{it} \qquad (6.6)$$

T_mne stands for the target's MNE status dummy, while A_mne stands for the acquirer's MNE

status dummy. Value of 1 denotes MNE firm and value of 0 denotes non-MNE firm. Other variables keep the same. The four types of deals are constructed by dividing A_mne = 1 or 0 in equation 6.5 and T_mne = 1 or 0 in equation 6.6.

6.3.4 Data Source and Data Description

This research has utilised two large databases which are Zephyr and Orbis. Zephyr contains widely domestic and cross border M&A deals. Orbis contains comprehensive and rich firm-level information. Both databases are provided by Bureau van Dijk, a leading electronic publisher of annual account information on private and public firms. The cross border M&A deals are selected to compose a large dataset spanning the period 2002-2011. The firms' information of both targets and acquirers has been incorporated into the dataset of cross border M&A deals. This research applies the dataset with pooling cross-section firms within a time period. In order to detect the synergetic and disciplinary effects, this study will investigate the post-M&A performance by differentiating the deals between acquiring high and low profit targets. This research adopts the methods used by Waring (1996) and Pedro and Pedro (2007) to set the bench mark and to stratify the high profitable and low profitable targets. The bench mark of pre-M&A target profitability level is set to be the average value (4.99%) of target's profit margin in the one year prior to the takeovers. Therefore, this study will divide the main sample into two subsamples based on the bench mark of pre-M&A target profitability level, which are high pre-profit target subsample and low pre-profit target subsample. Table 6.2 below will show the distributions of deals in the cross border M&A.

Table 6.2 shows the distributions of frequency and percentage about cross border M&A status in the deals across the pre-M&A target subsamples. From table 6.2, there are total 19,685 cross border M&A deals, in which 11,187 (56.83%) deals do not have the target's profitability value. Among of all international deals, 9.62% (1,894) of these deals are rumoured but uncompleted, 90.38% (17,791) of them are rumoured and completed finally. Most international deals were rumoured and then followed with completion. More specifically, in the deals with high profit or low profit targets, both completed international M&A (87.44% and 87.40%) also overwhelm the uncompleted ones (12.56% and 12.60%) in numbers of deals. Whilst, the number of deals with high profit targets (4,157) are slightly less than those with low profit firms (4,341), which are account for 21.12% and 22.05% respectively. Similarly, the numbers of high profit targeted international M&A (27.56% and 20.43%) are slightly less than that of low profit targeted ones (28.88% and 21.33%) respectively in terms of both uncompleted deals and completed ones.

Table 6.2 The distributions of cross border M&A and pre-M&A target feature

Pre-M&A target	Uncompleted MA		Completed MA		Total	
No profit value	825	7.37%	10362	92.63%	11187	100%
	43.56%		58.24%		56.83%	
High profit	522	12.56%	3635	87.44%	4157	100%
	27.56%		20.43%		21.12%	
Low profit	547	12.60%	3794	87.40%	4341	100%
	28.88%		21.33%		22.05%	
Total	1894	9.62%	17791	90.38%	19685	100%
	100%		100%		100%	

Source: Author's calculations from Orbis and Zephyr data set.

6.4 Results and Discussion

6.4.1 Effects of Cross Border M&A on Target's Profitability in the Static Model

The sample information for the static model of M&A's impact on target's post-acquisition profitability is summarised in the below table. From this table, all variables show positive mean value in the sample of 3,644 cross border M&A, while the dependent variable of target's post-M&A profit margin has negative values for specific observations. Amongst, the wide spread exists in such variables as target's cash flow, intangible assets and total assets.

Table 6.3 Descriptive statistics for the static model of target's profitability

Variable	Obs	Mean	Std. Dev.	Min	Max
$TProfitMargin_{t+1}$	3644	4.196531	21.67837	-99.83	99.5
$Completed\_MA_{t}$	3644	0.8619649	0.3449842	0	1
$TGearingRatio_{t-1}$	3644	97.49805	157.088	0	992.41
$TCashFlow_{t-1}$	3644	35239.26	17716.61	1	64793
$TIntangibleAsset_{t-1}$	3644	11115.22	10301.67	12	31312
$TTotalAsset_{t-1}$	3644	823654.6	6247576	6	2.02E+08
MAtype	3644	1.761526	0.949705	1	3

The descriptive statistics is analysed by using the full model with control variables.

The impacts of cross border M&A on target firms' post-acquisition profitability are presented in table 6.4. All these models include the key independent variables and pre-M&A target's characteristics such as cash flow, corporate leverage, intangible assets and firm size. One of the research tasks is to seek an understanding of potential profit margin level channels through which a completion of an M&A may influence target's profitability. This is done by interaction between the cross border M&A completion dummy and key target's characteristics. Thus, two sets of model estimation results are discussed in columns (1) and (2) of table 6.4, which are a baseline model and a model with interaction terms.

The sample of all international M&A is split into international deals with high previous profit target in columns (3) and (4) and ones with low profit target in columns (5) and (6) by differentiating the benchmark of target's pre-M&A profitability level. The former subsample aims to examine whether profitable targets can achieve the synergistic effect through international takeovers. The latter subsample aims to assess whether unprofitable targets can benefit from the disciplinary effect to improve its profitability by replacing the poor management. The results of estimates for two subsamples are also reported in table 6.4. The M&A types, year and industry effects are controlled for both the baseline model and interaction model. The table presents adjusted R-squared values and the numbers of observations in the specifications after eliminating the missing data.

From columns (1) and (2) of table 6.4, there are significant and negative coefficients of gearing ratio for targets. This means that high financial risk will reduce the target's profitability in international M&A and this effect will not be influenced significantly no matter whether the deal is completed or not. A target is less likely to gain profit after the M&A with the risk of debt default increasing prior to the takeover.

Column (1) of table 6.4 reports a significant and positive sign for the target's cash flow. This suggests that firms who have sufficient funds can achieve high profit after takeovers. This is because more strategic resources can be purchased to expand the outputs by targets. Consistent with the previous findings (Carpenter and Guariglia, 2008, Du et al., 2014), more cash holding could also release restrictions on obtaining various strategic resources and hence boost the profitability. This supports the managerial discipline hypothesis. More specifically, column (5) of table 6.4 reports the significant and positive sign of target's cash flow. It demonstrates that the high liquidity of target firm can contribute to its post-acquisition profitability level in international takeovers if it is in low profit position. This can be explained that the advantage of sufficient funds in targets can compensate for the disadvantage in low competency in expansion. However, columns (3) and (4) of table 6.4 with respect to the target's cash flow variable report the significant and negative signs. It suggests the negative relation between cash holding and post-acquisition profitability due to pursuit of management self-interests.

As for the firm size, according to columns (1) and (2) of table 6.4, the coefficients of target's total assets are significant and positive. This means that bigger target firms incline to achieve higher profitability levels because large firms are able to allocate more resource to achieve the profit. Moreover, the ability and skill of bigger firms are more mature in integrating resources

than those of smaller firms. Hence, they are more likely to survive in the markets and make a profit after experiencing takeovers.

Table 6.4 The impact of cross border M&A on target's profitability with static model

	All international deals						high profitable targets						low profitable targets					
	(1)			(2)			(3)			(4)			(5)			(6)		
TPM_{t+1}	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.
MA_t	-1.44E+00	1.10E+00		-4.11E+00	2.74E+00		-1.65E+00	1.54E+00		-8.25E+00	4.56E+00	*	-1.86E+00	1.46E+00		-4.38E+00	3.48E+00	
$TGEAR_{t-1}$	-1.03E-02	2.31E-03	***	-1.32E-02	6.29E-03	**	-4.96E-03	4.13E-03		3.94E-03	1.01E-02		-3.40E-03	2.72E-03		-1.16E-02	7.87E-03	
$TGEAR\_MA_{t-1}$				3.29E-03	6.75E-03					-1.07E-02	1.11E-02					9.34E-03	8.37E-03	
TCF_{t-1}	8.65E-05	2.03E-05	***	5.91E-05	5.68E-05		-5.70E-05	3.29E-05	*	-1.97E-04	9.30E-05	**	6.23E-05	2.53E-05	**	5.25E-05	7.23E-05	
TCF_MA_{t-1}				3.14E-05	6.07E-05					1.59E-04	9.93E-05					1.12E-05	7.71E-05	
TIA_{t-1}	-2.21E-05	3.51E-05		-9.93E-05	9.40E-05		-2.33E-05	4.88E-05		-9.80E-05	1.35E-04		8.82E-06	4.72E-05		-5.41E-05	1.22E-04	
TIA_MA_{t-1}				8.89E-05	1.01E-04					8.29E-05	1.45E-04					7.38E-05	1.32E-04	
TTA_{t-1}	1.43E-07	5.97E-08	**	1.26E-07	6.43E-08	**	3.38E-08	6.69E-08		5.70E-09	7.24E-08		1.58E-07	1.13E-07		1.50E-07	1.20E-07	
TTA_MA_{t-1}				1.78E-07	1.71E-07					1.46E-07	1.81E-07					2.86E-07	4.00E-07	
Vertical_MA	3.64E-01	2.04E+00		3.78E-01	2.04E+00		1.89E+00	2.88E+00		1.83E+00	2.88E+00		-2.31E+00	2.70E+00		-2.19E+00	2.70E+00	
Horizontal_MA	-9.02E-02	8.13E-01		-7.53E-02	8.14E-01		-1.51E-02	1.13E+00		-3.64E-02	1.13E+00		-1.46E+00	1.09E+00		-1.40E+00	1.09E+00	
Constant term	3.45E+00	7.30E+00		5.25E+00	7.55E+00		7.28E+00	1.12E+01		1.21E+01	1.17E+01		9.94E+00	8.90E+00		1.09E+01	9.24E+00	
Adj. R-squared	0.0314			0.0311			0.0363			0.0364			0.0449			0.0438		
No. of obs.	3644			3644			1786			1786			1663			1663		

Note: 1. All regressions have controlled year dummy and NACE 2-digit industrial sector dummies.

2. ***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

This research uses the likelihood ratio test (LR test) to compare differences among nested models because the baseline model can be regarded to be nested within the interaction model. The LR chi-square value between column (1) and (2) of table 6.4 is 2.68 (p-value is 0.6121) based on the same observation numbers of the two models. Similarly, the LR chi-square value between column (3) and (4) of table 6.4 is 4.38 (p-value is 0.3569), and the LR chi-square value between column (5) and (6) of table 6.4 is 2.44 (p-value is 0.6558). They suggest that the three baseline models are not nested well in the three interaction models for the whole cross border M&A sample and two subsamples with high and low profitable targets. This can also be confirmed by greater adjusted R-square values of baseline models than those of interaction models for three samples.

6.4.2 Effects of Cross Border M&A on Target's Profitability in the Dynamic Model

The sample information for the dynamic model of M&A's impact on target's post-acquisition profitability is summarised in the below table. From this table, all variables show positive mean value in the sample of 3,449 cross border M&A, while the variables of target's post-M&A and pre-M&A profit margins have negative values for specific observations. Amongst, the wide spread exists in such variables as target's cash flow, intangible assets and total assets.

Table 6.5 Descriptive statistics for the dynamic model of target's profitability

Variable	Obs	Mean	Std. Dev.	Min	Max
$TProfitMargin_{t+1}$	3449	4.442111	21.00123	-99.83	99.5
$Completed\_MA_{t}$	3449	0.8596695	0.34738	0	1
$TProfitMargin_{t-1}$	3449	6.870803	16.34717	-94.98	99.56
$TGearingRatio_{t-1}$	3449	97.72866	157.1727	0	992.41
$TCashFlow_{t-1}$	3449	35755.87	17502.19	1	64793
$TIntangibleAsset_{t-1}$	3449	11298.66	10309.24	12	31312
$TTotalAsset_{t-1}$	3449	862850.5	6417488	6	2.02E+08
MAtype	3449	1.776457	0.9534782	1	3

The descriptive statistics is analysed by using the full model with control variables.

Table 6.6 reports the same formats to table 6.4 except for including the lagged target's profitability and its interaction terms. They consider the effects of cross border M&A and use the cross border M&A completions dummy interacted with key target's characteristics in the dynamic models. The effects of international M&A with the dynamic models are exploited to make comparison with static models. This aims to examine whether the pre-acquisition target's

profitability controls for the past status about the target's earning ability prior to takeovers and to offer robustness check to the static models. Similarly, two sets of model estimation results and two subsamples estimations are discussed in table 6.6. The M&A types, year and industry effects are also controlled for both baseline model and interaction model. The table presents adjusted R-squared values and the numbers of observations in the specifications after eliminating the missing data.

Across model specifications in column (1) and (2) of table 6.6, the key variable M&A completions dummy shows significant and negative coefficients for targets. This suggests that the completion of international M&A will reduce the target's post-M&A profitability level compared with the abandoned takeover rumours, which is consistent with hypothesis 1. Furthermore, column (4) of table 6.6 reports a significant and negative relationship between target's post-M&A profit margin level and the completion of cross border M&A in the deals which have high profit targets. This implies that targets cannot achieve high profitability level after cross border M&A completing in the short term, even though the firm acquires a profitable target. This can be explained by the fact that the uncertainty and information asymmetry in overseas markets increase the risk of international investment, which reduces target's profitability. Furthermore, the synergy effects are less likely to be achieved in the short term due to the complexity during the process of implementing the practical integrations in actual takeovers. Thus, the advantage of target's previous profitability is eliminated in the actual M&A.

In columns (1) and (2) of table 6.6, the variable of target's pre-acquisition profitability shows positive and significant coefficients. This implies that the target's post-acquisition profit level extends from its pre-acquisition profitability levels after takeovers. This finding is consistent with hypothesis 4. More specifically, the pre-acquisition profitability level for targets shows significant and positive sign in columns (3) and (4) of table 6.6. This implies that profitable targets will benefit from their previous earning abilities and achieve the high post-acquisition profitability through M&A. This is consistent with previous literature in hypothesis 4 and confirms the synergetic effect. Furthermore, the significant and positive coefficients for the previous level of target's profit margin in columns (5) and (6) of table 6.6 suggest that the previous target's profitability is positively related to its post-M&A profitability in the deals which have low profit targets.\ Therefore, there is no firm evidence to prove the improvement of targets' profitability through replacing management in cross border M&A. These positive relationships between *ex-ante* and *ex-post* firm's profitability are consistent with the

explanation of Bellak et al. (2006) who argues firm's post-acquisition performance is related to its pre-acquisition level.

In columns (1) and (2) of table 6.6, the significant and negative sign of target's cash flow demonstrates that the previous high liquidity of target firm reduces its post-acquisition profitability level in international takeovers. This is because the managements in target firms intend to abandon the priority of profit-maximising objective for shareholders. The management will exploit their farthest self-interests because they know they may lose control of the firms due to their firms being targeted in takeovers. The sufficient funds aggravate managerial discretion and the large cash holding is squandered during takeovers, which leads to low profit position after acquisition. The significant and positive sign of the interaction term between target's cash flow and completion of M&A shows that the negative impact of cash flow is reinforced if the international deals are completed. This implies that the managements will exacerbate their behaviours of squandering if they know the acquisition would definitely complete. This actually reflects the existence of principal-agency problem. From columns (3) and (4) of table 6.6, the results confirm this kind of detrimental effect for the subsample of deals with high profit targets. In previously profitable firms, managers have more cash resource to spend lavishly and leave firms at a low profitability level when takeovers are completed. Target firms cannot benefit from their previously high profitability position.

Table 6.6 The impact of cross border M&A on target's profitability with dynamic model

	All cross border deals						High profitable targets						Low profitable targets					
	(1)			(2)			(3)			(4)			(5)			(6)		
TPM_{t+1}	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.
MA_t	-1.91E+00	1.02E+00	*	-7.54E+00	2.67E+00	***	-1.12E+00	1.47E+00		-8.08E+00	4.69E+00	*	-1.74E+00	1.44E+00		-4.98E+00	3.81E+00	
TPM_{t-1}	4.57E-01	2.25E-02	***	4.82E-01	5.72E-02	***	5.04E-01	3.96E-02	***	6.01E-01	1.02E-01	***	3.01E-01	4.35E-02	***	3.46E-01	1.18E-01	***
TPM_MA_{t-1}				-2.78E-02	6.18E-02					-1.10E-01	1.09E-01					-5.21E-02	1.26E-01	
$TGEAR_{t-1}$	-1.87E-03	2.20E-03		-3.41E-03	5.98E-03		1.11E-03	3.97E-03		8.65E-03	9.70E-03		-2.46E-03	2.69E-03		-1.16E-02	7.76E-03	
$TGEAR\_MA_{t-1}$				1.78E-03	6.42E-03					-9.14E-03	1.06E-02					1.04E-02	8.25E-03	
TCF_{t-1}	-5.60E-05	2.03E-05	***	-1.54E-04	5.73E-05	***	-6.85E-05	3.15E-05	**	-2.41E-04	8.91E-05	***	-1.98E-05	2.76E-05		-4.52E-05	7.96E-05	
TCF_MA_{t-1}				1.12E-04	6.12E-05	*				1.96E-04	9.52E-05	**				2.91E-05	8.50E-05	
TIA_{t-1}	6.24E-06	3.29E-05		-1.00E-04	8.76E-05		2.40E-05	4.67E-05		-1.16E-04	1.29E-04		6.06E-06	4.65E-05		-4.58E-05	1.21E-04	
TIA_MA_{t-1}				1.23E-04	9.44E-05					1.57E-04	1.38E-04					6.15E-05	1.31E-04	
TTA_{t-1}	7.95E-08	5.48E-08		6.84E-08	5.91E-08		4.16E-08	6.39E-08		2.66E-08	6.92E-08		1.21E-07	1.12E-07		1.18E-07	1.19E-07	
TTA_MA_{t-1}				1.13E-07	1.56E-07					7.76E-08	1.73E-07					1.87E-07	3.95E-07	
Vertical_MA	6.75E-01	1.92E+00		6.50E-01	1.92E+00		2.47E+00	2.75E+00		2.38E+00	2.75E+00		-2.26E+00	2.66E+00		-2.16E+00	2.66E+00	
Horizontal_MA	-4.14E-01	7.60E-01		-4.20E-01	7.61E-01		3.42E-01	1.08E+00		2.79E-01	1.08E+00		-1.45E+00	1.07E+00		-1.41E+00	1.08E+00	
Constant term	9.19E+00	6.86E+00		1.34E+01	7.12E+00	*	9.54E-01	1.08E+01		5.75E+00	1.13E+01		1.45E+01	8.80E+00	*	1.65E+01	9.38E+00	*
Adj. R-squared	0.1391			0.1394			0.12			0.1209			0.0725			0.071		
No. of obs.	3449			3449			1786			1786			1663			1663		

Note: 1. All regressions have controlled year dummy and NACE 2-digit industrial sector dummies.
2. ***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

The LR chi-square value between columns (1) and (2) of table 6.6 is 6.03 (p-value is 0.3033) based on the same observation numbers of the two models. Similarly, the LR chi-square value between columns (3) and (4) of table 6.6 is 7.17 (p-value is 0.2083), and the LR chi-square value between columns (5) and (6) of table 6.6 is 2.55 (p-value is 0.7684). They suggest that the three baseline models are not nested well in the three interaction models for the whole cross border M&A sample and two subsamples with high and low profitable targets. This cannot be confirmed by adjusted R-square values because the adjusted R-square values of interaction models show more explanatory power than those of baseline models for the first two samples.

6.4.3 Effects of Cross Border M&A on Acquirer's Profitability in the Static Model

The sample information for the static model of M&A's impact on acquirer's post-acquisition profitability is summarised in the below table. From this table, all variables show positive mean value in the sample of 4,012 cross border M&A, while the variables of acquirer's post-M&A profit margins and pre-M&A cash flow have negative values for specific observations. Amongst them, the wide spread exists in such variables as acquirer's cash flow, intangible assets and total assets.

Table 6.7 Descriptive statistics for the static model of acquirer's profitability

Variable	Obs	Mean	Std. Dev.	Min	Max
$AProfitMargin_{t+1}$	4012	5.609564	19.16852	-99.27	99.38
$Completed\_MA_{t}$	4012	0.9070289	0.2904281	0	1
$AGearingRatio_{t-1}$	4012	85.00418	118.1442	0	994.36
$ACashFlow_{t-1}$	4012	415542.6	2034567	-3231600	4.64E+07
$AIntangibleAsset_{t-1}$	4012	27886.95	20043.98	16	63480
$ATotalAsset_{t-1}$	4012	4258767	1.87E+07	94	5.75E+08
MAtype	4012	1.722832	0.9407515	1	3

The descriptive statistics is analysed by using the full model with control variables.

The impacts of cross border M&A on acquirer firms' post-acquisition profitability are presented in table 6.8. Similar to section 6.4.1, two sets of model estimation results are discussed in columns (1) and (2) of table 6.8, which are a baseline model and a model with interaction terms. The sample of all international M&A is split into international deals with high previous profit target in columns (3) and (4) and ones with low profit target in columns (5) and (6) by differentiating the benchmark of target's pre-M&A profitability level. The former subsample aims to examine whether acquirers can achieve the synergistic effect through acquiring a

profitable target. The latter subsample aims to assess whether acquirers can exert the disciplinary effect to replace the poor management in unprofitable targets. The results of estimates for two subsamples with controlling M&A types, year and industry effects are also reported in table 6.8. The table presents adjusted R-squared values and the numbers of observations in the specifications after eliminating the missing data.

From columns (1) and (2) of table 6.8, the dummy of completed cross border M&A reports significant and negative coefficients. This result indicates that the completed M&A will reduce acquirer's profitability level compared with the only rumoured but uncompleted deal. This is consistent with the hypothesis 1. The significant and negative coefficient sign is found in column (5). This can be explained by the fact that, with the cross border M&A completions, the complexity and uncertainty in the integrating process of actual takeovers make the acquirer's profit low. Especially when a firm acquires an unprofitable target, acquirers have to invest to improve the poor operation of targets in the short run after takeovers. Moreover, it takes time to exert the managerial disciplinary effect. Thus, because of both integration costs and time costs, the acquirer's profit is reduced in the short run if the M&A are completed. The finding indicates that acquirers become less likely to exert the disciplinary effect well when not controlling for the previous earning ability.

In column (1) of table 6.8, there is a significant and negative coefficient of gearing ratio for acquirers. This means that high financial risk will reduce the acquirer's profitability in international M&A and this effect will not be influenced significantly no matter whether the deal is completed or not. Further, the negative impact of leverage on acquirer's profitability is shown in column (3) of table 6.8. From one aspect, an acquirer is less likely to achieve high profit itself after cross border M&A if it conducts a hostile acquisition on a profitable overseas target especially equipped with high level of debt. From another aspect, the acquirer's high operational and financial risk may decline its profitability after takeovers if it *per se* is under bad performance without considering its previous earning ability.

Column (1) of table 6.8 reports a significant and positive sign for the acquirer's cash flow. This suggests that acquirers who have sufficient funds can achieve high profit after takeovers. This is because more strategic resources can be purchased to expand the outputs by acquirers. Consistent with the previous findings (Carpenter and Guariglia, 2008, Du et al., 2014), more cash holding could also release restrictions on obtaining various strategic resources and hence boost the profitability. This supports the managerial discipline hypothesis.

Columns (3) and (4) in table 6.8 report that horizontal international M&A has a positive impact on acquirer's profit margin in those deals where the acquirer purchases a more profitable target. This suggests that the acquirers are more likely to benefit from the integration of profitable targets due to synergy effect. The target's resources and advantages can be quickly digested and incorporated into the acquirers after the international takeovers because they are located in a similar or even the same industry. Without considering the acquirer's previous earning ability *per se*, acquirers show a strong ability in integrating target's profitability advantages. Moreover, it is assumed that foreign acquisitions tend to lower the extent of competition in the host market (Schiffbauer, et al., 2009). With less competition in the host market, acquirers can obtain strong monopoly power to reap the abnormal profit. The host market in the same industry makes the acquirer achieve the economy of scale and scope of product. The fast increase in sales leads to the acquirer's high profitability level after takeovers.

Table 6.8 The impact of cross border M&A on acquirer's profitability with static model

	All international deals						high profitable targets						low profitable targets					
	(1)			(2)			(3)			(4)			(5)			(6)		
APM_{t+1}	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.
MA_t	-3.38E+00	1.06E+00	***	-3.85E+00	1.89E+00	**	-2.14E+00	2.15E+00		1.96E+00	3.78E+00		-3.58E+00	1.82E+00	**	-3.28E+00	3.71E+00	
$AGEAR_{t-1}$	-8.41E-03	2.63E-03	***	-1.49E-02	1.02E-02		-2.07E-02	5.76E-03	***	5.42E-03	2.29E-02		-5.93E-03	5.06E-03		-1.53E-02	1.39E-02	
$AGEAR\_MA_{t-1}$				6.82E-03	1.05E-02					-2.77E-02	2.37E-02					1.09E-02	1.48E-02	
ACF_{t-1}	6.44E-07	2.95E-07	**	2.57E-07	3.83E-07		7.06E-07	1.05E-06		2.47E-06	1.86E-06		5.43E-07	5.05E-07		7.56E-07	8.70E-07	
ACF_MA_{t-1}				9.45E-07	5.78E-07					-2.36E-06	2.25E-06					5.31E-07	1.15E-06	
AIA_{t-1}	-1.66E-05	1.51E-05		3.03E-06	4.89E-05		-3.85E-05	3.42E-05		3.08E-05	9.78E-05		-1.03E-05	2.89E-05		4.90E-05	8.48E-05	
AIA_MA_{t-1}				-2.27E-05	5.13E-05					-7.95E-05	1.04E-04					-7.21E-05	9.05E-05	
ATA_{t-1}	-3.35E-08	3.09E-08		-1.76E-08	4.23E-08		-5.81E-08	1.27E-07		-2.71E-07	2.20E-07		-6.38E-08	6.21E-08		-1.22E-07	1.36E-07	
ATA_MA_{t-1}				-3.66E-08	6.33E-08					2.90E-07	2.74E-07					2.49E-08	1.54E-07	
Vertical_MA	1.87E-01	1.68E+00		2.28E-01	1.68E+00		4.16E+00	3.85E+00		4.01E+00	3.86E+00		1.17E+00	2.79E+00		1.31E+00	2.79E+00	
Horizontal_MA	9.14E-01	6.59E-01		9.28E-01	6.60E-01		2.63E+00	1.51E+00	*	2.64E+00	1.51E+00	*	2.04E+00	1.29E+00		2.06E+00	1.30E+00	
Constant term	1.07E+01	6.05E+00	*	1.09E+01	6.22E+00	*	-2.46E+01	2.05E+01		-2.89E+01	2.07E+01		6.74E+00	1.77E+01		3.89E+00	1.80E+01	
Adj. R-squared	0.0387			0.0391			0.0526			0.0509			0.0746			0.0735		
No. of obs.	4012			4012			806			806			977			977		

Note: 1. All regressions have controlled year dummy and NACE 2-digit industrial sector dummies.

2. ***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

The LR chi-square value between columns (1) and (2) of table 6.8 is 5.73 (p-value is 0.2203) based on the same observation numbers of the two models. Similarly, the LR chi-square value between columns (3) and (4) of table 6.8 is 3.07 (p-value is 0.5457), and the LR chi-square value between columns (5) and (6) of table 6.8 is 3.30 (p-value is 0.5094). They suggest that the three baseline models are not nested well in the three interaction models for the whole cross border M&A sample and two subsamples with high and low profitable targets. This can be confirmed by greater adjusted R-square values of baseline models than those of interaction models for the last two samples. However, the adjusted R-square values of interaction models show more explanatory power than those of baseline models in the first sample.

6.4.4 Effects of Cross Border M&A on Acquirer's Profitability in the Dynamic Model

The sample information for the dynamic model of M&A's impact on acquirer's post-acquisition profitability is summarised in the below table. From this table, all variables show positive mean value in the sample of 3,862 cross border M&A, while the variables of acquirer's post-M&A and pre-M&A profit margins and its pre-M&A cash flow have negative values for specific observations. Amongst them, the wide spread exists in such variables as acquirer's cash flow, intangible assets and total assets.

Table 6.9 Descriptive statistics for the dynamic model of acquirer's profitability

Variable	Obs	Mean	Std. Dev.	Min	Max
$AProfitMargin_{t+1}$	3862	6.119834	17.52875	-99.27	99.38
$Completed\_MA_{t}$	3862	0.9085966	0.2882193	0	1
$AProfitMargin_{t-1}$	3862	8.725741	16.25094	-94.46	99.05
$AGearingRatio_{t-1}$	3862	85.98095	118.0419	0	994.36
$ACashFlow_{t-1}$	3862	429745.8	2070744	-3231600	4.64E+07
$AIntangibleAsset_{t-1}$	3862	28210.64	19945.24	16	63480
$ATotalAsset_{t-1}$	3862	4404697	1.91E+07	94	5.75E+08
MAtype	3862	1.733817	0.9434082	1	3

The descriptive statistics is analysed by using the full model with control variables.

Table 6.10 reports the same formats to table 6.8 except for including the lagged acquirer's profitability and its interaction terms. They consider the effects of cross border M&A and use the cross border M&A completions dummy interacted with key acquirer's characteristics in the dynamic models. The acquirer's dynamic model aims to examine whether the pre-acquisition acquirer's profitability controls for the past status about the acquirer's earning ability prior to

takeovers and to offer robustness check to the static models. Similarly, two sets of model estimation results and two subsamples estimations with controlling the M&A types, year and industry effects are discussed in table 6.10. The table presents adjusted R-squared values and the numbers of observations in the specifications after eliminating the missing data.

Across model specifications in column (1) of table 6.10, the key variable M&A completions dummy shows significant and negative coefficients. This suggests that the completion of M&A will reduce the acquirer's post-M&A profitability level compared within the abandoned takeover rumours, which is consistent with hypothesis 1. Furthermore, controlling for other factors, column (3) of table 6.6 confirms that acquirers cannot achieve high profitability level after cross border M&A completing in the short term, even though they acquires profitable targets. The uncertainty and information asymmetry in overseas markets weaken the acquirer's ability of exploiting target's previous profitability in the actual M&A.

In columns from (1) to (6) of table 6.10, the variable of acquirer's pre-acquisition profitability shows positive and significant coefficients. This implies that the acquirer's post-acquisition profit level extends from its pre-acquisition profitability levels after takeovers. This finding is consistent with hypothesis 4. More specifically, in columns (3) and (4) of table 6.6, acquirers will benefit from their previous earning abilities and achieve high post-acquisition profitability when they acquire the more profitable targets. This confirms the synergetic effect. Furthermore, the significant and positive coefficients for the previous level of acquirer's profit margin in columns (5) and (6) of table 6.10 suggest that the previous acquirer's profitability is positively related to its post-M&A profitability in the deals which have low profit targets. Therefore, there is no firm evidence to prove the effect of managerial discipline.

In column (3) of table 6.10, there is a significant and negative coefficient of gearing ratio for acquirers. This means that the acquirer who has previous high financial risk will reduce its profitability after takeovers when it acquires a profitable target. It can be explained that a firm is less likely to achieve high profit itself if it conducts a hostile acquisition on a profitable overseas targets with especially being financed by debts (Lemmon et al., 2009). The low post-acquisition profitability of acquirers could result from excessive debt financing. This leads to large interest payments that exceeded the company's operating cash flow, which results in the operating loss (Balcaen, et al., 2012).

In columns (1) and (3) of table 6.10, the coefficients of acquirer's intangible assets show

significant and negative sign in both all cross border M&A sample and the high profit targets subsample. The evidence demonstrates that an acquirer with a high volume of intangible asset will make itself less profitable after M&A. This can be explained by the fact that the transfers of technological and managerial advantages from acquirers to overseas targets will increase the operational costs for acquirers. It takes time to make a profit before acquirers can gain positive returns from the initial investment in international takeovers (Syverson, 2011), e.g. training the employees in newly acquired firms, or establishing brand reputation in the host country. Du et al. (2014) argue that some advantages of acquirer's intangible resources are unable to exert properly in the short term after takeovers because such advantages as research and development brand reputation may be damaged due to the M&A process. Even if the acquirer purchases a high profit target, the synergy effect may not be explicit in the short run. It needs time to restore these advantages and generate synergistic gains. Additionally, acquirers sometimes write off the value of certain intangible assets during the integration after the takeovers. This will decrease the book value of acquirer's total assets, which creates a better book profit in terms of return on assets (ROA) or return on capital employed (ROCE) in their financial reports. However, this research employs profit margin to measure firm's profitability. Firm's profit margin is calculated by profit before tax over operating revenue. Thus, there is no significant influence on acquirer's profit margin if it writes off intangible assets.

In table 6.10, columns (5) and (6) show that horizontal M&A has a positive impact on acquirer's post-acquisition profit margin in cross border deals if a firm acquires a low profit target. This is because acquirers can purchase unprofitable targets at a low transaction cost in order to exploit overseas markets. The host markets in the same industry provide the acquirer with enlargements in economy of scale and scope of product. The fast increase in sales with a slow increase in costs results in the acquirer's high profitability level after takeovers.

Table 6.10 The impact of cross border M&A on acquirer's profitability with dynamic model

	All cross border deals						high profitable targets						low profitable targets					
	(1)			(2)			(3)			(4)			(5)			(6)		
APM_{t+1}	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.	Coef.	Std. Err.	sig.
MA_t	-2.29E+00	9.18E-01	**	-1.25E+00	1.76E+00		-3.43E+00	1.84E+00	*	-2.94E+00	3.52E+00		-2.31E+00	1.55E+00		-1.42E+00	3.39E+00	
APM_{t-1}	4.06E-01	1.65E-02	***	4.81E-01	5.04E-02	***	4.73E-01	3.68E-02	***	3.80E-01	8.75E-02	***	4.09E-01	3.53E-02	***	4.37E-01	1.12E-01	***
APM_MA_{t-1}				-8.47E-02	5.31E-02					1.12E-01	9.61E-02					-3.12E-02	1.18E-01	
$AGEAR_{t-1}$	-3.01E-03	2.29E-03		-6.57E-03	9.00E-03		-9.49E-03	5.01E-03	*	1.03E-02	2.16E-02		-2.40E-03	4.30E-03		-8.56E-03	1.20E-02	
$AGEAR\_MA_{t-1}$				3.65E-03	9.27E-03					-2.03E-02	2.21E-02					7.08E-03	1.28E-02	
ACF_{t-1}	1.36E-07	2.52E-07		-2.31E-08	3.28E-07		-3.49E-07	8.83E-07		1.77E-06	1.58E-06		2.40E-07	4.25E-07		7.85E-07	7.33E-07	
ACF_MA_{t-1}				3.51E-07	4.92E-07					-2.94E-06	1.91E-06					-1.01E-07	9.66E-07	
AIA_{t-1}	-2.70E-05	1.30E-05	**	1.56E-06	4.29E-05		-5.03E-05	2.93E-05	*	-3.36E-05	8.50E-05		-1.01E-05	2.47E-05		5.06E-05	7.30E-05	
AIA_MA_{t-1}				-3.20E-05	4.50E-05					-1.91E-05	9.05E-05					-7.22E-05	7.80E-05	
ATA_{t-1}	-8.67E-09	2.62E-08		-7.63E-09	3.60E-08		4.53E-08	1.07E-07		-2.06E-07	1.87E-07		-4.79E-08	5.22E-08		-1.58E-07	1.15E-07	
ATA_MA_{t-1}				-1.17E-09	5.37E-08					3.48E-07	2.32E-07					1.02E-07	1.30E-07	
Vertical_MA	-1.14E+00	1.44E+00		-1.09E+00	1.44E+00		-9.55E-01	3.29E+00		-1.17E+00	3.30E+00		1.30E+00	2.37E+00		1.42E+00	2.38E+00	
Horizontal_MA	-6.67E-02	5.67E-01		-9.50E-02	5.68E-01		7.21E-01	1.28E+00		8.06E-01	1.28E+00		2.07E+00	1.10E+00	*	2.02E+00	1.11E+00	*
Constant term	5.94E+00	5.12E+00		4.90E+00	5.31E+00		-3.00E+01	1.72E+01	*	-3.13E+01	1.74E+01	*	2.24E+01	1.49E+01		1.92E+01	1.53E+01	
Adj. R-squared	0.1772			0.1772			0.2515			0.2501			0.1865			0.185		
No. of obs.	3862			3862			780			780			948			948		

Note: 1. All regressions have controlled year dummy and NACE 2-digit industrial sector dummies.

2. ***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

The LR chi-square value between columns (1) and (2) of table 6.10 is 4.84 (p-value is 0.4353) based on the same observation numbers of the two models. Similarly, the LR chi-square value between columns (3) and (4) of table 6.10 is 4.28 (p-value is 0.5094), and the LR chi-square value between columns (5) and (6) of table 6.10 is 3.83 (p-value is 0.5741). They suggest that the three baseline models are not nested well in the three interaction models for the whole cross border M&A sample and two subsamples with high and low profitable targets. This can also be confirmed by greater adjusted R-square values of baseline models than those of interaction models for three samples.

6.4.5 Comparison in Goodness of Fit for Static and Dynamic Models

Based on the findings of this chapter, there is some difference between static and dynamic models for targets and acquirers respectively. From the aspect of targets, significant and negative coefficients of cash flow in static models change into positive in dynamic models respectively within the whole sample of international M&A and the subsample with low profitable targets. The significant and positive coefficient of firm size in static model changes into insignificant in dynamic model within the whole sample of international M&A.

From the aspect of acquirers, the significant and positive coefficient of cash flow in static model changes into insignificant in dynamic model within the whole sample of international M&A. The insignificant coefficients of intangible assets in static models change into significant and negative in dynamic models respectively within the whole sample of international M&A and the subsample with high profitable targets. Moreover, in order to increase acquirer's profitability in horizontal M&A, acquirers should buy high profitable targets without considering its previous profitability, while they should buy low profitable targets if considering its previous profitability.

The diagnostics used by LR chi-squared and adjusted R-squared show whether the baseline models are nested in the interaction models. However, When considering which model can explain better the impact of cross border M&A completion on firm's profitability between the static models and dynamic models, LR chi-square and adjusted R-square are unable to show the comparison of model fit. This research uses AIC (Akaike Information Criterion) and BIC (Bayesian Information Criterion) to test model fit and compare the goodness-of-fit for both the above models. Table 6.11 reports measures of model fit for effects of cross border M&A on

target's profitability. The results from likelihood ratio test from the above several sections have already indicated the more appropriate model from comparisons of corresponding baseline and interaction models. This section compares static baseline models (1, 3 and 5) with dynamic baseline models (2, 4 and 6) for targets within the whole sample of international M&A and the two subsamples with high and low profitable targets respectively. By using the same numbers of observations within the three samples, table 6.11 shows three positive values (391.108, 155.804 and 42.552) of BIC' difference between static and dynamic models respectively. These results provide strong supports for the target's dynamic models for the three samples.

Table 6.11 Comparisons of fit for regresses of target's post-M&A profitability

	All international M&A			High profitable targets			Low profitable targets		
Type:	Static	Dynamic		Static	Dynamic		Static	Dynamic	
Model:	(1) Baseline	(2) Baseline	Difference	(3) Baseline	(4) Baseline	Difference	(5) Baseline	(6) Baseline	Difference
N:	3449	3449	0	1786	1786	0	1663	1663	0
Log-Lik Intercept Only:	-15394.179	-15394.179	0	-7954.083	-7954.083	0	-7315.99	-7315.99	0
Log-Lik Full Model:	-15285.194	-15085.567	-199.627	-7871.666	-7790.02	-81.646	-7230.477	-7205.493	-24.984
D:	30570.388(3347)	30171.134(3346)	399.254(1)	15743.332(1686)	15580.040(1685)	163.292(1)	14460.955(1567)	14410.986(1566)	49.969(1)
LR:	217.970(98)	617.224(99)	-399.254(-1)	164.834(96)	328.126(97)	-163.292(-1)	171.026(92)	220.995(93)	-49.969(-1)
Prob > LR:	0	0	0	0	0	0	0	0	0
R2:	0.061	0.164	-0.103	0.088	0.168	-0.08	0.098	0.124	-0.027
Adjusted R2:	0.034	0.139	-0.105	0.036	0.12	-0.084	0.045	0.073	-0.028
AIC:	8.923	8.808	0.115	8.927	8.837	0.09	8.811	8.782	0.029
AIC*n:	30774.388	30377.134	397.254	15943.332	15782.04	161.292	14652.955	14604.986	47.969
BIC:	3306.263	2915.155	391.108	3119.013	2963.209	155.804	2839.49	2796.937	42.552
BIC':	580.322	189.214	391.108	553.988	398.184	155.804	511.28	468.728	42.552

Source from the analysis by using the command of 'fitstat' in Stata package.

Table 6.12 reports measures of model fit for effects of cross border M&A on acquirer's profitability. Similar to target side, the results from likelihood ratio test from above several sections have also indicates the more appropriate model from comparisons of corresponding baseline and interaction models. This section compares static baseline models (1, 3 and 5) with dynamic baseline model (2, 4 and 6) for acquirers within the whole sample of international M&A and the two subsamples with high and low profitable targets respectively. By using the same numbers of observations within the three samples, table 6.12 shows three positive values (569.119, 160.205 and 130.699) of BIC' difference between static and dynamic models respectively. These results provide strong supports for the acquirer's dynamic models for the three samples.

Table 6.12 Comparisons of fit for regresses of acquirer's post-M&A profitability

	All international M&A			High profitable targets			Low profitable targets		
Type:	Static	Dynamic		Static	Dynamic		Static	Dynamic	
Model:	(1) Baseline	(2) Baseline	Difference	(3) Baseline	(4) Baseline	Difference	(5) Baseline	(6) Baseline	Difference
N:	3862	3862	0	780	780	0	948	948	0
Log-Lik Intercept Only:	-16539.6	-16539.6	0	-3346.238	-3346.238	0	-3976.298	-3976.298	0
Log-Lik Full Model:	-16402.48	-16113.791	-288.689	-3270.524	-3187.092	-83.432	-3899.894	-3831.117	-68.777
D:	32804.959(3762)	32227.582(3761)	577.378(1)	6541.048(690)	6374.184(689)	166.865(1)	7799.787(855)	7662.233(854)	137.554(1)
LR:	274.240(96)	851.618(97)	-577.378(-1)	151.427(86)	318.292(87)	-166.865(-1)	152.809(89)	290.362(90)	-137.554(-1)
Prob > LR:	0	0	0	0	0	0	0	0	0
R2:	0.069	0.198	-0.129	0.176	0.335	-0.159	0.149	0.264	-0.115
Adjusted R2:	0.045	0.177	-0.132	0.074	0.251	-0.177	0.061	0.187	-0.126
AIC:	8.546	8.397	0.149	8.617	8.405	0.211	8.424	8.281	0.143
AIC*n:	33004.959	32429.582	575.378	6721.048	6556.184	164.865	7985.787	7850.233	135.554
BIC:	1734.825	1165.707	569.119	1946.135	1785.93	160.205	1939.314	1808.615	130.699
BIC':	518.619	-50.5	569.119	421.272	261.067	160.205	457.229	326.53	130.699

Source from the analysis by using the command of 'fitstat' in Stata package

Generally, dynamic model shows a better fit for both targets and acquirers based on the diagnostic analysis for goodness of model fit.

6.4.6 The Impact of MNE Status on Target's Profitability

The impact of MNE status on target's post-acquisition profitability is reported in table 6.13. All these models include the pre-M&A target's characteristics such as profitability, cash flow, corporate financial leverage, intangible assets and firm size. Four models also include the target MNE status dummy and acquirer MNE status dummy respectively. The year and industry dummies are controlled in all the four models.

In model (1) of table 6.13, when the acquirer is an MNE in the international M&A, target's MNE status shows a significant and positive sign. This means MNE target's profit margin will be improved when it is acquired by another MNE firm. The significant and positive sign of acquirer's MNE status in model (3) suggests the same argument to model (1). The MNE status in model (2) and (4) is not found to be significant. This means that only the cross border M&A between multinational corporations can bring target firms an improvement in profitability. No significant evidence is found for the ownership advantage transfer from MNEs to non-MNEs in international takeovers. It can be interpreted that the synergy effect can only be created in the integration between MNEs.

The coefficients in columns from (1) to (4) of table 6.13 show significant and positive signs. This means that the target's pre-M&A profitability is positively related to its post-M&A profitability regardless of firm's MNE status. The significant and negative coefficient of the target's gearing ratio in column (1) suggests that a high level of the target's leverage will reduce its profitability if it is acquired by an MNE. This can be explained that the sales generated are used to pay off the debt of targets, which leads to a low profitability in the balance sheets. In terms of the target's cash flow, the significant and negative coefficients in columns (1) and (3) imply that the large cash holdings of targets reduce their profitability either when they are acquired by MNEs or when they are MNEs *per se*. This could be caused by a wayward expenditure of the target's management on the large cash holdings.

In model (2) of table 6.13, horizontal M&A shows significant and negative sign. This suggests that when a non-MNE firm acquires another overseas MNE target firm within the same industry, the acquired MNE target cannot achieve high post-acquisition profitability level. It can be

explained by a substitution effect on domestic exporting activity. Harris (2009) argues that domestic production is more likely to be substituted after horizontal M&A due to easy mobility of production across similar firms. If horizontal cross border M&A indeed replaces exporting activities of MNE targets, this will reduce the domestic production of acquired MNE targets. MNE targets lose their advantage in the scale economy of production. This increases the production cost and accordingly compress the profit of target firms. Thus, the post-acquisition profitability of MNE target will be reduced after horizontal M&A.

Table 6.13 The impact of MNE status on target's post-M&A profitability

	(1)			(2)			(3)			(4)		
	MNE acquirer			Non-MNE acquirer			MNE target			Non-MNE target		
TPM_{t+1}	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.	Coef.	Std. Err.	Sig.
T_mne	2.58E+00	1.23E+00	**	-2.41E+00	2.14E+00							
A_mne							3.82E+00	1.81E+00	**	-9.46E-01	1.07E+00	
TPM_{t-1}	4.31E-01	3.20E-02	***	5.59E-01	5.33E-02	***	4.56E-01	4.86E-02	***	4.69E-01	3.22E-02	***
$TGEAR_{t-1}$	-5.30E-03	3.15E-03	*	2.19E-03	5.19E-03		-6.82E-03	5.74E-03		-2.65E-03	3.01E-03	
TCF_{t-1}	-5.34E-05	2.82E-05	*	-6.24E-05	4.67E-05		-1.30E-04	4.91E-05	***	-4.22E-05	2.74E-05	
TIA_{t-1}	-4.76E-06	4.63E-05		-2.34E-05	8.00E-05		-1.68E-05	7.86E-05		6.82E-06	4.59E-05	
TTA_{t-1}	2.41E-07	2.09E-07		2.00E-06	2.07E-06		2.01E-07	2.02E-07		1.78E-07	5.42E-07	
MAtype												
Vertical_MA	5.53E-01	2.54E+00		-2.90E+00	5.07E+00		1.84E+00	4.28E+00		-2.46E-01	2.60E+00	
Horizontal_MA	-5.75E-01	1.07E+00		-4.43E+00	1.84E+00	**	6.57E-01	1.83E+00		-1.50E+00	1.05E+00	
Constant term	2.72E+00	9.68E+00		5.40E+01	1.76E+01	***	-5.96E+00	1.19E+01		3.44E+00	1.56E+01	
Adj R-squared	0.1185			0.179			0.2774			0.1097		
No. of obs.	1845			666			482			2029		

Note: 1. All regressions include year dummy and NACE 2-digit industrial sector dummies.

2. ***, **, * denotes significance at the 1, 5, and 10 per cent level, respectively.

6.5 Conclusion

This research assesses the impacts of cross border M&A on targets' and acquirers' performance in terms of profitability by employing the firm's information and M&A status in the period of 2002-2011. It also investigates the participants' post-M&A profitability level with the subsamples of previously high and low profit targets respectively. The firm level data from rumoured but uncompleted deals are adopted to stimulate the counterfactual situation which builds a high similarity with actual completed M&A. This provides a better control group compared with previous research. The impacts of cross border M&A on both target side and acquirer side are analysed respectively. The profitability of firms prior to the M&A is also taken into account in analyzing impacts of M&A on profitability itself. It also compares the dynamic mode of cross border M&A with static model of that which excludes the firm's pre-acquisition profitability variable.

Some important results are found from the analysis. Generally, Chapter 6 finds that the firm's profitability level reduces once cross border M&A is completed for both targets and acquirers. One important reason is the complementarity in assets between the foreign acquirer and the domestic target which increases the transaction price. Thus, increased transaction costs result in low profitability. From another aspect, the takeover rumour can be regarded as a type of threat to replace the incumbent managements. Such threats from potential M&A motivate the incumbent managements to improve their firm's profitability. However, when the rumoured deals are completed, firms may not make high profit due to considerable costs of transaction and integration. Therefore, in chapter 6, completed deals are found to have a low firm's profitability level compared with rumoured but uncompleted deals. More specifically, in cross border M&A with the motive of synergy effect, firms are less likely to obtain a high profitability level due to the difficulty in integrating target's competitive advantages. In contrast, in cross border M&A with the motive of disciplinary effect, the difficulty in transfer of managerial ability is more likely to result in a low firm's profitability.

In addition, the *ex-post* research on M&A performance suffers from the sample selection issues which may cause bias to the results on firm performance. To minimise this bias, the rumoured but uncompleted deals are adopted which provides a better control group compared with previous approaches. The profitability of the firm prior to M&A is also included to control for the effect of firm's previous earning ability on its following performance. The firm's pre-acquisition profitability level is used to construct the dynamic mode of cross border M&A.

Chapter 6 finds that the firm's post-M&A profitability level has a positive relation with its previous profitability level prior to M&A. This means that the post-M&A performance of targets and acquirers are found generally to inherit their previous earning ability prior to takeovers.

As for the effects of firm-level characteristics, it is found that the firm's leverage level is negatively related to target's and acquirer's profitability in the static models of international deals rather than the dynamic models. The firm's liquidity level is negatively related to target's profitability in international M&A in the dynamic models but is positively associated with both firms profitability in the static models. The firm's intangible resource is only negatively associated with acquirer's profitability in the dynamic models of international M&A. Therefore, firm's leverage, liquidity and intangible assets are found to be negatively related to its profitability. Some explanations for these findings are: first, high level of leverage leads to large interest payments that exceeded the company's operating cash flow, which results in the operating loss; second, the sufficient cash flows aggravate managerial discretions and poor investment targets are chosen in takeovers, which leads to low profit position after acquisition; third, transferring technological and managerial advantages across markets will increase the operational costs for firms, e.g. training the employees in newly acquired firms, or establishing brand reputation in the host country. All these reasons will reduce operation gains in international takeovers. However, the firm size has only positively effects on target's profitability in the static models of international M&A.

Horizontal international M&A is positively associated with the acquirer's post-M&A profitability level in the dynamic models if its target has low profit. However, horizontal international M&A has similar effects for an acquirer in the static models if its target has high profit. The evidence shows that the acquirer and target firms could not make profit in the short term after they complete the international M&A. The results also suggested that the cross border M&A could not bring both target firms and acquirer firms with the synergy effect in terms of profitability. Furthermore, the acquirer firms cannot achieve high profitability through the disciplinary intention takeovers. However, the results from chapter 6 find that only when MNE firms acquire MNE targets via takeovers, target's profitability is improved. It is concluded that the synergy effect can only be created in the integration between MNEs. However, there is no significant evidence to show a transfer of the MNE's ownership advantages.

There are also some limitations and implications for future research. First, there are ample

profitability studies in the literature which report a positive or negative impact of M&A on *ex-post* profitability. Nevertheless, it is required to be cautious when drawing inferences from this body of research evidence. The approach with using accounting profit has inherent defect in measuring post-M&A performance improvement, particularly under the scenario where M&A can prompt market power. It is argued to be somehow problematic by using accounting data. For instance, the corporate management teams might manipulate accounting profits. Second, this research has not assessed other measures for firm's profitability, for example, ROCE, ROC and so on. These measures perhaps will generate different results. Third, the profitability is one of the indicators for firm performance. The other one can be productivity. The impacts of employed factors in this research on firm's profitability could not completely reflect the M&A's function in firm performance after takeovers. In such a case, it is virtually impossible to distinguish the change in productive efficiency from that in profitability because enhanced market power may affect both productivity and profitability. Clearly, an increase in productive efficiency and management effectiveness does not necessarily lead to improvement of post-merger profitability. However, a fall in productive efficiency and management effectiveness, *ceteris paribus*, probably infers a decline in *ex-post* profitability with decreased market power.

After examining the impacts of cross border M&A on both productivity and profitability in the previous chapters, the negative results are generally reported in the research. This means that cross border M&A does not improve firm performance both internally and externally in spite of support from various motives. In the next chapter, some conclusions about the whole research project will be discussed and suggestions will be proposed for future research and practices for academics and professional practitioners.

Chapter Seven: Conclusions and Policy Implications

7.1 Introduction

This thesis has investigated the motives of cross border M&A and their impact on firm performance using a rich firm-level global dataset across over the period 2002-2011. The three empirical chapters employ information on firms in cross border M&A deals, which includes "rumoured" deals and "completed" deals. Although previous research focuses on the factors which initiate M&A activity, it has not investigated what factors determine a completed M&A deal. This thesis finds firm-level evidence which shows that some factors actually deter the completion of cross border M&A, while these factors are traditionally believed to increase M&A activity. Furthermore, the thesis identifies a negative performance effect of cross border M&A. Some firm-level factors facilitate firms to achieve positive internal returns (i.e. productivity) but negative external returns (i.e. profitability).

This thesis exploits the determinants of M&A likelihood from a different perspective. It identifies what factors change a rumoured cross border M&A deal status to a deal that is completed rather than what factors initiate a takeover. This is new to the takeover prediction literature. In addition, the firm's information from the acquirer's side casts a new insight into the takeover likelihood. Meanwhile, previous literature conducts performance analysis by employing the characteristics of a likely target firm (e.g. Schiffbauer et al., 2009; Harris, 2009). However, the determinant of a likely target is a necessary but not sufficient condition for that of M&A completions. A likely target can be identified based on the determinants of M&A completions, while the completion of M&A is not necessarily subject to the determinants of a likely target. For example, the regulatory factor will affect the completion of M&A, but it shows less influence in selection of a likely target. Therefore, some bias may exist for the factors identified based on a likely target in previous research.

From the results obtained in the present study, it shows that firm's liquidity, profitability, investment size and the listed status are important determinants which influence the completion of international takeovers. Thus, cross border M&A is determined by efficiency motives. However, firms cannot achieve either productivity gains or profitability gains once the international deals are completed. Since firms cannot benefit from cross border M&A, why do they still actively engage in such activity given the increased volume and number of total cross border M&A? This chapter will discuss the question and provide several suggestions in terms

of information disclosure and risk control.

The structure of the rest of this chapter is as follows. The next section presents the research contexts. The research objectives are reviewed in the third section. The fourth section provides a brief summary and review of the empirical evidence found in the current study. This exhibits how the conclusions were derived. The implications about this evidence and the conclusions drawn from it are then discussed in the fifth section to make a contribution to the current debate on cross border M&A. This chapter also provides suggestions on the development and implementation of business strategies in the corporate domain and the competence of strategic management and thinking. It includes policy advice about the information disclosure requirements on acquirer and target firms. This would improve the efficiency and effectiveness of the market for corporate control. The final section presents research limitations and implications for future study.

7.2 Research Contexts

From the aspect of management inefficiency, some evidence suggests that differentials in corporate performance are magnified in the recessionary phase of the business cycle (Geroski and Gregg, 1997). Although the mean of profitability fluctuates with the economic cycle, the heterogeneity of profitability enlarges sharply in downturn of the economic cycle. This suggests that manager's competence is more likely to be distinguished in the sluggish economy due to decline in demand markets. If the lack of management competence can be shown more clearly in recessionary conditions, takeovers would be expected to increase during recessions. This is consistent with the observation of this study over the period 2002-2011, and particularly the period after the financial crisis in 2007. Although it is observed that the volume of cross border M&A activity decreases dramatically during the financial crisis, the cross border M&A activity after financial crisis resumes the trend to increase in terms of volume and total value.

This thesis adopts competition to explain the performance of cross border M&A and provide evidence about the operational consequences of M&A. The conventional theory argues that conglomerate mergers have little impact on competition, while horizontal and vertical mergers will restrict competition due to the increase in concentration. The potentially reduced competition due to takeovers is negatively associated with firm's productivity because it reduces the motivations on innovation and work enthusiasm. Driffield and Du (2007) argue that foreign M&A have a significant effect on productivity, but a limited effect on profitability. The

relationship between foreign takeovers and firm's financial performance is complex. Less competition in markets could result in high firm's profitability due to the monopoly rent. In contrast, it is argued that low efficiency narrows access to resources and markets, and accordingly generates low profitability (Driffield et al., 2013). Thus, the balance between increased market power and increased efficiency during the takeovers is regarded as beneficial to the public interest (Williamson, 1963).

Alternatively, private losses suggest that the market expects post-acquisition losses in efficiency and effectiveness. Such losses might not bring significant damage to the whole economy in the short term, but poorer resource allocations are more readily associated with social welfare loss in the long term. The evidence generated by the current study suggests, on the basis of this reasoning, that in the period 2002-2011, cross border M&A activity probably had negative consequences for the global economy as a whole.

7.3 Research Objectives

This present study has realised three main objectives. First, to investigate the determinants of making cross border M&A completed. These influential factors are extracted from the empirical literature of both industrial economics and financial economics. Some determinants are proved to motivate the completion of cross border M&A. At the same time, they also constitute factors to influence post-M&A firm performance.

Second, to examine the impacts of cross border M&A on firm's post-M&A productive efficiency. This objective is to answer whether cross border M&A can improve the firm's productivity by comparing the different productivity in terms of TFP and labour productivity. It is hypothesized that acquired firms gain efficiency improvement from cross border M&A due to transfer of the firm specific advantages such as knowledge capital from parent firms to acquired firms. Thus, this requires that parent firms possess some firm specific advantages that acquired firms do not. In order to achieve this objective, chapter 5 differentiates the *ex-post* productivity effects from two subsamples of M&A in terms of the difference between acquirer's and target's pre-M&A intangible assets. On the one hand, to answer whether M&A can transfer the technological advantages e.g. knowledge capital from parent firms to acquired firms when acquirers own more intangible resource advantages than overseas targets. On the other hand, to answer whether cross border M&A can facilitate acquirer firms to make good use of acquired assets when acquirers aim to obtain complementary intangible resources from targets in

takeovers.

Third, to assess the impacts of cross border M&A on firm's post-acquisition profitability. This objective aims to answer whether cross border M&A can make the firm more profitable. This is built on the theoretical basis of the market for corporate control, in particular, to re-examine the management displacement hypothesis which considers the market as an effective discipline over corporate management teams. It differentiates the *ex-post* profitability effects from two subsamples of cross border M&A in terms of target's pre-M&A profitability level. On the one hand, it aims to answer whether firms can obtain the synergy from acquiring a profitable firm in an international takeover. On the other hand, it also aims to examine whether international M&A can act in the role of effective management displacement mechanism when acquiring an unprofitable firm.

The first objective has been the basis of a number of previous studies on M&A activity. This part of the work provides a prerequisite for the empirical work on the latter two objectives, which are investigations of the effects on firm performance. This study assesses the impact of M&A on firm's productivity and profitability from the aspects of internal returns and external returns. An original contribution is the use of takeover rumour data from a different perspective. This thesis incorporates the rumoured data into the control group to address the sample selection issue. Previous research has indicated some drawbacks of accounting data and the potential sample selection bias which are discussed in Chapter 3. The rumoured M&A data represents those deals which potentially could happen but do not eventually proceed. This creates similar deals with the range of completed deals characteristics. It simulates the counterfactual situation and directly identifies the potentially involved firms (i.e. potential targets and acquirers in rumoured but uncompleted deals). These rumoured deals are used to compare with the actual takeovers to identify the determinants which make international M&A complete eventually.

7.4 Summary and Review of Empirical Results

In this section, the empirical results from chapters 4 through 6 are collated, summarised and analysed. These results are used to examine the questions set at the beginning of the thesis.

7.4.1 Determinants of Cross Border M&A and Its Impact on Firm Performance

Due to the different focal point of chapter 4 on M&A likelihood, this chapter finds some results

which are different from the previous literature. Traditionally, it is believed that the large amount of target's intangible asset (RBV), sufficient acquirer's liquidity (FCF hypothesis), and high acquirer's profitability (efficiency theory) will increase M&A activity. However, in this chapter, they are proved to deter the completion of international takeovers. First, based on the framework of TCE and RBV, although acquirers are interested in the intangible assets of targets, the takeovers may not complete ultimately because of the high integration costs or the unachievable consensus between both firms on the transaction price. Second, according to the free cash flow (FCF) hypothesis, sufficient cash flow grants managers more discretion on investment attempts such as takeovers. Nevertheless, these deals are more likely to be thwarted by shareholders and boards, which lead to deals being abandoned. Third, firms with the advantage in earning ability are more likely to initiate takeovers, but potential managerial resistance may prevent the deals from being completed.

Therefore, chapter 4 finds that acquirer's liquidity and profitability, target's intangible asset and absolute size measure, the relative size of acquirer over target, the listed status of both involving firms and GDP growth for the host country are important determinants of international takeover completion. Particularly, it is found that the small target's absolute size and the large relative size of acquirer will increase the likelihood of M&A completions. This means that large firms have more efficiency in implementing M&A transactions than smaller firms. This high efficiency of large firms is reflected in the findings of chapter 5 which testifies the positive relation between firm size and TFP. Therefore, the overall finding in chapter 4 suggests that the cross border M&A are the efficiency seeking activity rather than a resource seeking one. It is concluded that the managerial discretion from agency problem, the incautiousness of managements and high level of intangible assets in target firms will impede the completion of international M&A. Given the motives of cross border M&A, the next step of research aims to reveal how firms perform in international M&A.

Chapter 5 reports that the completion of a cross border M&A decreases the post-acquisition productivity level of targets and acquirers compared with the productivity of similar firms in takeover rumours. The information asymmetry across markets causes difficulty in integration between targets and acquirers. This results in high transaction costs and accordingly low firm's productivity. Particularly in market driven expansions, cross border M&A will impair target's and acquirer's productivity in terms of TFP level and labour productivity level. Besides, cross border M&A will bring the low level of target's labour productivity in strategic assets driven

expansions. This suggests that neither of these two motives behind cross border M&A could produce a high level of firm's productivity in the short term. This chapter compares two kinds of firm's efficiency measures, i.e. TFP and labour productivity. It is found that the increase in firm's labour productivity is mainly caused by capital deepening rather than diffusion in technological or organizational knowledge and economies of scale. Therefore, TFP is regarded as a more appropriate measure for firm's productivity.

It is argued that productivity and profitability are closely related. Based on the finding of low productivity in chapter 5, it is questioned whether the weakened productivity will be transformed into low profitability. Firms with different earning ability levels are acquired in cross border M&A. On the one hand, some firms acquire profitable targets because managers think the profitability of acquired firms will contribute to the financial performance for both firms. In particular, the results in chapter 4 report that the lower an acquirer firm's profitability, the higher the likelihood that a cross border M&A is completed. Unprofitable acquirers wish to improve their financial positions through acquiring profitable targets. On the other hand, other firms acquire unprofitable targets because managers believe in their ability of improving target's financial performance. However, chapter 4 finds that profitable acquirers do not indiscreetly overtake unprofitable targets in order to avoid losing their existing earning advantages. Therefore, chapter 6 investigates the firm's post-M&A profitability level with two subsamples of previously high and low profit targets to test the synergetic effect and managerial disciplinary effect respectively.

More specifically, in cross border M&A with the motive of synergy effect, firms tend to acquire profitable targets. However, high earning ability of profitable target firms is rooted in their competitive advantages. High market risk causes uncertainty across countries (Norback and Persson, 2008). This increases the probability of failure in transferring the advantages about the high earning ability across markets. Thus, the finding in chapter 6 proves that, in spite of a good intention to achieve synergy gains, it is less likely to obtain a high profitability level due to the difficulty in integration of competitive advantages.

From other aspects, some takeovers are underpinned by the motive of managerial disciplinary effect. In this type of M&A, firms tend to acquire unprofitable targets to replace poor management (Jensen, 1988). However, chapter 6 finds that such type of takeovers generate lower firm's profitability once deals are completed. It is explained that some competitive advantages such as superior organisational routine cannot be easily adopted by targets. Besides,

some international M&A are just conducted because discretional managers waywardly choose targets for expansion. Thus, chapter 6 finds that the difficulty in transfer of managerial ability is more likely to bring low profitability.

In summary, chapter 4 finds that the abuse of managerial power and the difficulty in transfer of intangible resource deters the completion of cross border M&A. The findings in chapters 5 and 6 are consistent with the motives of international takeovers found in chapter 4. In chapters 5 and 6, managerial discretion and the potential high transaction costs are concluded to have negative impacts on performance of cross border M&A. Therefore, although there are various motives to initiate cross border M&A, they are less likely to complete in the end due to the aforementioned reasons. Furthermore, with such reasons, completed cross border M&A results in negative effects on firm performance compared with rumoured but uncompleted deals.

7.4.2 Comparison between Productivity and Profitability on Completion of M&A

Multinational enterprises (MNEs) are generally argued to possess specific competitive advantages such as a superior production technology or organizational superiority (e.g., Caves, 1996; Dunning, 1988; and Casson, 1987). Such superiorities can be transferred to domestic targets via international takeovers, which can improve target's firm performance. In chapters 5 and 6, the research tests the multinational status of firms on target's productivity and profitability respectively to isolate firm's ownership advantages on its performance. However, the results from chapters 5 and 6 find that the increase in target's productivity and profitability only takes place in the integration between MNEs in the completed cross border M&A. Compared with small domestic firms, large MNEs have more advantages, especially in finance to get access to advanced technology or resources across the world. Such updated technology or intangible capability enables MNEs to achieve high productivity and profitability. This suggests that only integration between MNEs produces the synergy effect. Moreover, the transfer of MNE's ownership advantages to non-MNEs is not significant. From chapters 5 and 6, no significant finding on the transfer of MNE's ownership advantages will improve firm's productivity or profitability for all completed cross border M&A.

In chapter 5, horizontal international M&A shows positive target's labour productivity. It is explained that the expansion into the same industry often leads to substitution of domestic production in host country (Harris, 2009). This will reduce the workforce in target firms and bring capital deepening effect which increases firm's labour productivity. In chapter 6,

horizontal international M&A is found to be positively related to the acquirer's profitability. This is explained by the achievement in economy of scale. Host markets where acquirers are exploring are in the same industry to acquirer's home markets. The broadened channels of sale enable firms to realise scale economy in production, which reduces the cost of products. The increase in sales with decrease in costs results in the acquirer's high profit margin after takeovers.

As for the effects of firm's characteristics, firm's high leverage level has found the negative effect on its post-M&A productivity and profitability. For example, high leverage level means that firms have to make large payments due to the high proportion of debt. The limited disposable capital can be used in innovation to improve firm's productivity. Meanwhile, large interest payments exceed the company's operating cash flow, which results in operating loss. Another factor, large firm size provides firms themselves with the possibility of access to available resources. They facilitate firms to improve their productivity and profitability in the short term.

However, the thesis finds that several firm-level factors show different impacts on firm performance. For example, high levels of firm's liquidity and intangible assets are found to increase firm's productivity in chapter 5, but they are found to decrease firm's profitability in chapter 6. Large amount of cash flow and intangible assets provide firms with sufficient capital and advantages of technology or brand in innovation activity, which facilitate the firm to improve its productivity. However, sufficient cash flows aggravate managerial discretions and poor investment targets are chosen in takeovers, which leads to low profit position after acquisition. Besides, transferring technological and managerial advantages across markets will increase the operational costs for firms, e.g. training the employees in newly acquired firms, or establishing brand reputation in the host country (Syverson, 2011). Such factors encourage managerial discretions and increase transaction costs, which squeezes firm's profit margin, which reduces operational gains in international takeovers. This suggests that although certain firm's characteristics will bring firms positive internal returns, the same characteristics will generate negative external returns due to the influence of external factors.

More specifically, sufficient cash flow can cause large managerial discretionary power. The abuse of managerial discretion can be found to mainly come from acquirer firms in market seeking M&A or takeovers with acquiring unprofitable targets. These irresponsible behaviours lead to low firm performance after takeovers. Thus, it is necessary to find a way to effectively

supervise the behaviours of managers. The information disclosure on rationale of takeovers can provide a good channel to achieve proper supervisions. Another example, the difficulty in transfer of intangible resources between acquirers and targets, is reflected from both sides of involving firms in cross border M&A. From senders of action, transaction costs are generated in transferring intangible assets from targets to acquirers (e.g. brand and its reputation or technology) or from acquirers to targets (e.g. managerial or organisational superiority). From receivers of action, the success of integration depends on the adaptation of intangible assets in recipients, for example, workforce skills in host or home markets, customer satisfaction on introduced brands, etc. Thus, the improvement of firm performance requires not only the cooperation between targets and acquirers but also effective risk assessments on transaction and integration prior to M&A.

7.5 Policy Implications of this Study

7.5.1 Policy Implications of Merger Activity

Since the completion of cross border M&A cannot bring positive impacts on firm performance, why does cross border M&A activity continue in the real world? What implications are there for cross border M&A? The results generated in the current study can make a contribution to the policy debate on M&A.

On the one hand, the increase in concentration due to M&A will raise opportunities to abuse managerial discretion. The abuse of power leads to wayward expansion without caution. Given incautious selection of investment projects, markets fail to allocate resources properly. The inappropriate allocation of resources could have detrimental impacts on the competitiveness of the firms involved. This argument supports the findings in this thesis. Besides, it is argued that the acquirer firms feel less competitive pressures in M&A because takeovers reduce the competitive activity of rivals and the number of independent decision-making centres (Peacock and Bannock, 1991). This would suggest that, to an extent, internal growth might bring more benefit to the public interest because it protects the domestic competition and the pressure on innovation activity remains.

On the other hand, Demsetz (1973) argues that it is the efficiency effect that brings high profits rather than abuse of market power. Littlechild (1989) further indicates that M&A activity should be encouraged because of its role in the disciplinary threat posed by the market for corporate

control. The threat of takeover motivates improvement in efficiency. In fact, it is not necessary to use the actual completed takeover to exert the disciplinary function of poorly-run firms (Franks and Mayer, 1996). With respect to successful bids, there is evidence that even if a bid is unsuccessful (i.e. only rumoured but uncompleted deals) it can produce a positive impact on the subsequent performance of the target firm (Pickering, 1983; loll and Pickering, 1988). The findings in this thesis supports this argument. However, the takeover threat leads potential targets to have to maintain short term profits by diverting resources away from investment and innovation. Such a threat may cause a potential misallocation of resources which leads management's attention to short-termism performance rather than a long-term view (Grinyer et al., 1998). Some positive synergy gains will be only shown in the long term.

It is important to consider the balance of costs and benefits when conducting a takeover. George (1989) concludes that the restriction of obtaining monopoly positions should be advocated in M&A activity. However, it is hard to detect whether dominant firms contain anti-competitive behaviour during takeovers. It is argued that mergers should be viewed with a more sceptical eye and a more balanced approach should be adopted.

7.5.2 Recommendations on Practices of Takeover Activity

In this section an attempt is made to explore how the results from this study could be utilised to suggest and improve merger activity directly. It will be argued that increased information disclosure should be required in order to improve the protection for shareholders of involving firms and facilitating the decision-making of corporate management teams involved in M&A. Given the empirical results above suggest that completed M&A produces more unsuccessful outcomes than rumoured but abandoned deals, Pickering (1983) indicates that the managers of potential acquirers should give their full consideration to the reality about the likely outcomes of any takeover that they have in mind.

In order to assess the managerial performance and the commercial prospects of a takeover, shareholders are advised to obtain two types of information. First, a detailed proposal about the expectation of potential benefits generated from an acquisition. The information on rationale for M&A proposals should be a disclosure requirement. Specifically, the managers of acquirers should demonstrate in some detail why they are seeking to gain control of the target, and the specific pecuniary benefits to shareholders of acquirers from the acquisition. This ensures managers of acquirers behave on behalf of shareholder interests. It is also important to disclose

the risk of this potential takeover, and solutions to control the risk.

However, the information about the perceived or estimated benefits of an M&A might be the competitive advantage of acquirer firms. Such disclosure may leak confidential information to potential rivals of the acquirer. The price of target firms will be re-evaluated, which leads to an increased transaction price. Therefore, it is necessary to consider the audience of information disclosure. However, the disciplinary mechanism of the market for corporate control suggests that targets are, on average, underperforming. In M&A motivated by this mechanism, acquirer's management teams often select poor targets. Accordingly, many deals seem to be undertaken for reasons other than the benefit of shareholders. Therefore, it is difficult for managers to provide the persuasive reason why they intend to conduct such takeovers.

The second element that should be disclosed is the post-acquisition audit on the subsequent performance. Managers should be obliged to report the subsequent outcome of the takeover when it is completed. Disclosure of such information would force management teams to exercise a greater degree of caution when undertaking expansion via merger. In addition, provision of a performance standard would offer managers an objective to achieve and reduce the unnecessary waste of their efforts. M&A often involves the complicated restructuration of assets and lines of business, so it seems reasonable to justify their business plans with a public declaration.

Ron (2009) argues that the management of acquirer firm often regard post-merger disclosure as an additional and unnecessary cost. However, Mueller (1989) insists that it is good management practice to evaluate an acquisition. It should be affordable for good management to carry out the audit and scrutiny. The audit undertaken by the professional accountancy firms provides shareholders with information about the performance of professional advisers hired and the firm's management team. However，such increased disclosure is also likely to deter potentially dysfunctional mergers which might impair the efficiency of firms.

The disclosure on pre- and post-acquisition performance might be beneficial to the economy as a whole as well as private investors. This useful information to market participants will bring an improvement to the market for corporate control. Revealing the prediction of profit improvements to the shareholders may facilitate solving the problem due to the asymmetry of information between shareholders and managers. The increased disclosures enable the regulatory authorities to implement more effective surveillance on M&A activities. Better

decisions would be made if the potential acquirers could disclose their estimates of the costs and benefits associated with an acquisition. This would contribute to the interests of shareholders and the public as well as improvement in the success rate of M&A deals.

7.6 Research Implications for Future Study

Several issues regarding cross border M&A still require further research.

First, it is worthy of combining the PSM approach and rumoured M&A data. Most previous research presumes there are a large number of target firms, while new research could pay more attention to the availability of appropriate target firms. Sometimes, the takeover rumours provide observers with a potential M&A pool to identify the appropriate target firms. Given the advantages of takeover rumour data in constructing the control group, future study can apply PSM approach to match firms from the pool of takeover rumours. This will generate more relevance than studies which only match firms from non-targets populations.

Second, this study did not examine the integration process of cross border M&A. The firms with previous experience in overseas markets have an advantage in the process of operating international business. The international experience from various operations and cultural practices in several host countries should be learnt by investing firms. The effective integration of target firms after acquisitions benefits from the investing firm's knowledge of international practices. As such, the experience factor and its impact on cross border M&A is worth study. Moreover, considering the process of integration, the long-term performance of M&A should be studied. This research only examines the short-term effect of takeover on firm performance. With the integration process deepening, long-term firm performance may be different from short-term. Although the short-term M&A performance in this study fails to offer incentive for M&A activities to complete, post-M&A performance could be changed in the long run. Furthermore, future research could use performance growth data apart from performance level data to examine the effect of takeovers.

Third, the resource based view requires academics to pay more attention to the organisational capability framework. Most measures of firm-level resources should be elaborated. The resource based view emphases that firm's resources and competencies are important, unique, non-duplicable and discrepant. Thus, more elaborated measures will contribute to empirical research although it is not easy to measure the unique value of firm-level resources and

competencies. For example, the intangible asset comprises technological ability, good will, brand value, marketing channel, etc. These specific aspects could have different impacts on firm performance. Future study can distinguish the intangible asset from these aspects.

Fourth, given various motives behind takeovers, different operations and implementations during integrating involving firms will lead to different firm performance. As for the determinants of acquisition, further study could attempt alternative indicators to measure firm-level characteristics in order to check the consistency of results. Such measures could be employee numbers, sales revenue, return on investment and return of capital employed, etc. These measures will perhaps generate different results. Furthermore, given the impact of M&A on competition, future research could continue to exploit the performance of M&A by controlling for the market conditions from aspects of industry concentration, market share, etc. The change in performance of M&A can be detected whether it is owing to the change in market power. Moreover, future study could exploit the effect of the means of transaction payment, such as cash or share exchanges, on firm performance. It is also worth investigating the impact of the extent of ownership change, e.g. percentage of shareholding acquired on firm performance.

Fifth, most studies on M&A are static, and M&A has not been connected with other corporation forms such as contractual alliances and joint ventures. However, M&A can evolve from other corporation forms with the development of globalisation and improvement of organisational learning. For example, joint venture, compared to M&A, provides firms with an advantage of flexibility under the context of information asymmetry. Firms can purchase their partner's stake in international joint venture to complete acquisitions under certain conditions. It is interesting that the research could focus on the dynamical evolution of these strategic alternatives. Although M&A are the foundation of business development at a new stage in the invested markets, further development from the dynamic and longitudinal perspectives could be investigated to expand the scope of cross border M&A.

References

Aho, K.; Derryberry, D. & Peterson, T. (2014) Model Selection for Ecologists: The Worldviews of AIC and BIC, *Ecology*, Vol. 95, pp. 631–636

Aivazian, V. & Qiu, J. (2006) How Do Creditors Value Corporate Diversification? Evidence from Bank loan Contracting, *Working Paper*

Akaike, H. (1974) A New Look At The Statistical Model Identification, *IEEE Transactions on Automatic Control*, Vol. 19 (6), pp. 716–723

Alchian, A. A. & Demsetz, H. (1972) Production, Information Costs, and Economic Organization. *The American Economic Review*, Vol. 62, pp. 777-795.

Ambrose, B. W. & Megginson, W. L. (1992) The Role of Asset Structure, Ownership Structure, and Takeover Defenses in Determining Acquisition Likelihood, *Journal of Financial and Quantitative Analysis*, Vol. 27, pp. 575–89

Amihud, Y., & Lev, B. (1981) Risk Reduction as A Managerial Motive for Conglomerate Mergers, *Bell Journal of Economics*, Vol. 12, pp. 605-617

Amit, R. & Schoemaker, P. J. H. (1993) Strategic Assets and Organizational Rent, *Strategic Management Journal*, Vol. 14(1), pp. 33-46

Anand, J. & Delios, A. (2002) Absolute and Relative Resources as Determinants of International Acquisitions, *Strategic Management Journal,* Vol. 23, pp. 119–134

Andersen, O. (1997) Internationalization and Market Entry Mode: A Review of Theories and Conceptual Framework. *Management International Review,* Vol. 37, pp. 27-42

Ang, J.S. & Cheng, Y. (2006) Direct Evidence on the Market-Driven Acquisitions Theory, *Journal of Financial Research*, Vol. 29 (2), pp. 199–216.

Angrist, J. (2001) Estimation of Limited Dependent Variable Models with Dummy Endogenous Regressors. *Journal of Business and Economic Statistics*, Vol. 19 (1), pp. 2-16.

Angrist, J. & Krueger, A. (2001) Instrumental variables and the search for identification: from supply and demand to natural experiments. *Journal of Economic Perspectives*, Vol. 15, pp. 69–85.

Angwin, D. (2004) Speed in M&A Integration: The First 100 Days, *European Management Journal*, Vol. 22(4), pp. 418–430

Antweiler, W. & Frank, M. Z. (2004) Is All That Talk Just Noise? The Information Content of Internet Stock Message Boards, *Journal of Finance*, Vol. 59(3), pp. 1259-1294.

Archibugi, D. & Michie, J. (1995) The Globalisation Of Technology: A New Taxonomy, *Cambridge Journal of Economics*, Vol. 19, pp. 121–140.

Arnold, J. M. & Javorcik, B. S. (2005) Gifted Kids or Pushy Parents? Foreign Acquisitions and Plant Performance in Indonesia, *CEPR Discussion Papers* No. 5065

Ashkenas, R. N. & Francis, S. C. (2000) Integration Managers: Special Leaders for Special Times, *Harvard Business Review.* Vol. 78 (6), pp. 108–116

Ashkenas, R. N., DeMonaco, L. J. & Francis, S.C. (1998) Making The Deal Real: How GE Capital Integrates Acquisitions. *Harvard Business Review.* Vol. 76 (1), pp. 165–178

Auerbach, J. A. & Reishus, D. (1986) Taxes and the Merger Decision: An Empirical Analysis, *National Bureau of Economic Research, Working Paper* No. 1855

Autio, E., Heikki, L. & Arenius, P. (2002) Emergent "Born Globals": Crafting Early and Rapid Internationalization Strategies in Technology-Based New Firms. *Helsinki University of Technology Working Paper,* Series 91-WP-2002-003

Balcaen, S., Manigart, S., Buyze, J. & Ooghe, H. (2012) Firm Exit after Distress: Differentiating Between Bankruptcy, Voluntary Liquidation and M&A, *Small Business Economics*, Vol. 39 (4), pp 949-975

Bannister, J. W.& Riahi-Belkaoui, A. (1992) Cash Flow, Earnings, and Corporate Control, *Managerial Finance*, Vol. 18 (5), pp.14 - 30

Barba-Navaretti, G. & Venables, A. J. (2004) *Multinational Firms in the World Economy*, Princeton University Press, Princeton, NJ

Barkema, H. G. & Vermeulen, F. (1998) International Expansion through Start-Up or Acquisition: A Learning Perspective, *Academic Management Journal*, Vol. 41, pp. 7–26.

Barkema, H. G., Bell, J. H. J. & Pennings, J. M. (1996) Foreign Entry, Cultural Barriers and Learning, *Strategic Management Journal*, Vol. 17, pp. 151–166.

Barnes, P. (1999) Predicting UK Takeover Targets: Some Methodological Issues and an Empirical Study, *Review of Quantitative Finance and Accounting*, Vol. 12, pp. 283–301.

Barney, J.B. (1991) Firm Resources and Sustained Competitive Advantage, *Journal of Management*, Vol. 17(1), pp. 99.

Barney, J.B. (2001) Is the Resource-Based Theory a Useful Perspective for Strategic Management Research? Yes, *Academy of Management Review*, Vol. 26 (1), pp. 41–56.

Bartley, J. & Boardman, C. (1986) The Replacement-Cost-Adjusted Valuation Ration As A Discriminator Among Takeover Target And Non-Target Firms, *Journal of Economics and Business*, Vol. 38, pp.41-55

Bartley, J. W. & Boardman, C. M. (1990) The Relevance Of Inflation Adjusted Accounting Data To The Prediction Of Corporate Takeovers, *Journal of Business Finance & Accounting*, Vol. 17, pp. 53–72

Bartoloni, E. (2010) Capital Structure and Innovation: Causality and Determinants, *DRUID conference paper*

Barton, D. & Sherman, R. (1984) The Price and Profit Effects of Horizontal Mergers: A Case Study, *Journal of Industrial Economics*, Vol. 33, pp. 165-177

Bassett, P. (1986) *Strike Free: New Industrial Relations in Britain*, MacMillan, London.

Baumol, W., Panzar, J. & Willig R. (1982) *Contestable Markets and the Theory of Industry Structure*, Harcourt Brace Jovanovich

Behr, A. & Held, F. (2011) The Success of Bank Mergers Revisited. An Assessment Based on A Matching Strategy. *Journal of Empirical Finance*, Vol. 18(1), pp. 117-135.

Beitel, P., Schiereck, D. & Wahrenburg, M. (2003) Explaining the M&A-Success in European Bank Mergers and Acquisitions, *Center for Financial Studies Working Paper Series*, Johann Wolfgang Goethe University.

Bellak, C. & Pfaffermayr, M. (2002) Why Foreign - Owned Firms are Different: A Conceptual Framework and Empirical Evidence for Austria, *Hamburg Institute of International Economics Discussion Paper* No. 26372

Bellak, C. (2004) How Domestic and Foreign Firms Differ and Why Does it Matter? *Journal of Economic Surveys*, Vol. 18, pp. 483-514

Bellak, C., Pfaffermayr, M. & Wild, M. (2006) Firm Performance after Ownership Change: A Matching Estimator Approach, *Applied Economics Quarterly*, Vol. 52, pp. 29-54

Bena, J., Rosen, C.F. & Ondko, P. (2008) Zephyr: Ownership Changes Database, *London School of Economics Working Paper*

Benfratello, L. & Sembenelli, A (2002) Foreign Ownership and Productivity: Is the Direction of Causality so Obvious? Centro di Studi Luca d'Agliano *Development Studies Working Paper* No. 166

Berger, A. N., Demsetz, R. S. & Strahan, P. E. (1999) The Consolidation of the Financial Services industry: Causes, Consequences and Implications for the Future. *Journal of Banking and Finance,* Vol.23, pp.135-195.

Berk, J. & DeMarzo, P. (2007) *Corporate Finance,* International ed. Pearson Education, Boston.

Berk, J. & DeMarzo, P. (2009) *Corporate Finance*, Pearson International Edition

Berkovitch, E. & Narayanan, M. P. (1993) Motives for Takeovers: An Empirical Investigation, *Journal of Financial and Quantitative Analysis*, Vol. 76 No. 1, pp. 347-362.

Berle Jr., A. A., & Means, G.C. (1932) *The Modern Corporation and Private Property*, MacMillan, New York.

Bertrand, O. & Zitouna, H. (2008) Domestic versus Cross-Border Acquisitions: Which Impact on The Target Firm's Performance? *Applied Economics*, Vol. 40, pp. 2221-2238

Bertrand, O. & Zuniga, P. (2006) R&D and M&A: Are Cross-Border M&A Different? An Investigation on OECD Countries, *International Journal of Industrial Organization*, Vol. 24(2), pp. 401-423.

Besanko, D., Dranove, D., Shanley, M. & Schaefer, S. (2006) *Economics of Strategy, 4th edn*, Wiley, New York

Bevan, A. & Estrin, S. (2004) The Determinants of Foreign Direct Investment into European Transition Economies. *Journal of Comparative Economics*, Vol. 32, pp. 775–787.

Bhagat, R. S., Kedia, B. L., Harveston, P. D. & Triandis, H. C. (2002) Cultural Variations in the Cross Border Transfer of Organizational Knowledge: An Integrative Framework. *Academic Management Review*, Vol. 27, pp. 204–221.

Bhattacharya, J. & Vogt, W. (2007) Do Instrumental Variables Belong In Propensity Scores? *Tech. Rep. NBER Technical Working Paper* 343, National Bureau of Economic Research, MA.

Black, B. (1989) Bidder Overpayment in Takeovers, *Stanford Law Review* Vol. 41, No. 3, pp. 597-660.

Blanc, H. & Sierra C. (1999) The Internationalisation of R&D By Multinationals: A Trade-Off Between External and Internal Proximity. *Cambridge Journal of Economics*, Vol. 23, pp. 187-206.

Bliss, C. I. (1934) The Method of Probits. *Science*, Vol.79 (2037) pp. 38–39.

Blundell, R., Dearden, L. & Sianesi, B. (2005) Evaluating the Effect of Education on Earnings: Models, Methods and Results from the National Child Development Survey. *Journal of the Royal Statistical Society: Series A*, Vol. 168, pp. 473 - 512.

Bockem, S. (2001) Mergermania or After You. A Theory of Endogenous Merger Waves, *University of Dotmund, mimeo*

Bodnar, G. M., Dumas, B. & Marston, R.D. (2003) Cross-Border valuation: The international cost of equity capital. *Working Paper* No. 03-3, Weiss Center for International Financial Research.

Borjas, G. J. & Ramey, V. A. (1995) Foreign Competition, Market Power, and Wage Inequality, *The Quarterly Journal of Economics,* Vol. 110(4), pp. 1075-1110

Bradley, M. H. & Jarrel, G. (1988) Comment, In: Coffee Jr, J.C., Lowenstein, L., Rose-Ackerman, S. (Eds.). *Knights, Raiders and Targets,* Oxford University Press, New York, pp. 252–259

Bradley, M. H. & Sundaram, A.K. (2004) Do Acquisitions Drive Performance or Does Performance Drive Acquisitions? *SSRN Working Paper*.

Bradley, M. H. (1987) Discussion of Caves, Effects of Mergers and Acquisitions on the Economy: An Industrial Organization Perspective, in L. Brown and E. Rosengren (eds) *The Merger Boom,* Federal Reserve Bank of Boston.

Bradley, M. H., Desai, A. & Kim, E. H. (1983) The Rationale behind Interfirm Tender Offers: Information or Synergy? *Journal of Financial Economics,* Vol. 16, pp.183-206

Brar, G., Giamouridis, D. & Liodakis, M. (2009) Predicting European Takeover Targets, *European Financial Management,* Vol. 15 (2), pp. 430-450.

Breinlich, H. (2008) Trade Liberalization and Industrial Restructuring through Mergers and Acquisitions, *Journal of International Economics*, Vol. 76 (2), Pages 254–266

Bresman, J., Birkinshaw, J. & Nobel, R. (1999) Knowledge Transfer in International Acquisitions, *Journal International Business Studies*, Vol. 30, pp. 439–463.

Breton, G., Cucumel, G. & Taufler, R. (1993) What Investment Analysts Consider in Evaluating Equities: A Content Analysis of Stockbrokers' Circulars, mimeo, *City University,* London.

Brief, R. & Lawson, R. (1991) Approximate Error in Using Accounting Rates of Return to Estimate Economic Returns, *Journal of Business Finance & Accounting,* Vol.18, pp.13-20.

Brouthers, K. D. & Brouthers, L.E. (2000) Acquisition or Greenfield Start-Up, Institutional, Cultural and Transaction Cost Influences. *Strategic Management Journal,* Vol. 21, pp. 89–97.

Brouthers, K. D.(2002) Institutional, Cultural and Transaction Cost Influences On Entry Mode Choice and Performance, *Journal International Business Studies,* Vol. 33, pp. 203–221

Bruce, A. B. & Christopher, T.T. (2000) R&D Intensity and Acquisitions in High-Technology Industries: Evidence from the US Electronic and Electrical Equipment Industries. *Journal of Industrial Economics*, Vol. 48(1), pp. 47-70.

Bryson, A., Dorsett, R. & Purdon, S. (2002) The Use of Propensity Score Matching in the Evaluation of Labour Market Policies. *Working Paper* No. 4, Department for Work and Pensions

Buckley, P. J. & Casson, M. C. (1998) Analyzing Foreign Market Entry Strategies: Extending the Internalization Approach. *Journal of International Business Studies*, Vol. 29, pp. 539–562.

Budzinski, O. & Kretschmer, J. P. (2009) Implications of Unprofitable Horizontal Mergers: A Positive External Effect does not Suffice to Clear a Merger! *Working Papers* 84/09, University of Southern Denmark, Department of Environmental and Business Economics

Butler, J. S. (2000) Efficiency Results of MLE and GMM Estimation with Sampling Weights, *Journal of Econometrics*, Vol. 96, pp. 25–37.

Caliendo, M. & Kopeinig, S. (2005) Some Practical Guidance for the Implementation of Propensity Score Matching. *Discussion Paper* No. 1588, IZA, Bonn.

Caliendo, M. & Kopeinig, S. (2008) Some Practical Guidance For The Implementation Of Propensity Score Matching. *Journal of Economic Surveys*, Vol. 22(1), 31–72.

Capron, L. (1999) The Long-Term Performance of Horizontal Acquisitions. *Strategic Management Journal*, Vol. 20(11), pp.987-1018

Capron, L., Mitchell, W. & Swaminathan, A. (2001) Asset Divestiture Following Horizontal Acquisitions: A Dynamic View, *Strategic Management Journal,* Vol. 22, pp. 817-844

Carline, N., Linn, S. & Yadav, P. (2002) The Impact of Firm-Specific and Deal-Specific Factors on the Real Gains in Corporate Mergers and Acquisitions: An Empirical Analysis, *University of Oklahoma, Working Paper*.

Carmichael, F. (1992) Multinational Enterprises and Strikes: Theory and Evidence, *Scottish Journal of Political Economy*, Vol. 39, pp. 52-68.

Carpenter R. & Guariglia A. (2008) Cash Flow, Investment, and Investment Opportunities: New Tests using UK Panel Data, *Journal of Banking and Finance*, Vol. 32, 1894-1906.

Casson, M. C. (1987) *The Firm and the Market. Studies on Multinational Enterprise and the Scope of the Firm*, Basil Blackwell, Oxford

Casson, M. C. (1995) Internationalisation of the Firm as a Learning Process: A Model of Geographical and Industrial Diversification, *Review d'Economie Industrielle*, Special Issue, pp. 109–134.

Caves, R. E. (1989) Mergers, Takeovers, and Economic Efficiency: Foresight vs. Hindsight, *International Journal of Industrial Organization,* Vol. 7(1), pp. 151-174.

Caves, R. E. (1996) *Multinational Enterprise and Economic Analysis*, 2nd edition, Cambridge, MA: Cambridge University Press.

Cefis, E., Rosenkranz, S. & Weitzel, U. (2008) Effects of Coordinated Strategies on Product and Process R&D, *Journal of Economics*, DOI 10.1007/s00712-008-0041-z

Chari, A., Chen, W. & Dominguez, K. (2009) Foreign Ownership and Firm Performance: Emerging-Market Acquisitions in the United States. *NBER Working Paper* No. 14786.

Chatterjee, R. & Meeks, G. (1996) The Financial Effects of Takeover: Accounting Rates of Return and Accounting Regulation, *Journal of Business Finance & Accounting,* Vol. 23(85), pp. 1-68.

Chatterjee, S. (1986) Types of Synergy and Economic Value: The Impact of Acquisitions on Merging and Rival Firms, *Strategic Management Journal,* Vol. 7, pp. 119-139.

Chatterjee, S. (1992) Sources of Value in Takeovers: Synergy or Restructuring - Implications for Target and Bidder Firms, *Strategic Management Journal,* Vol. 13, pp. 267-86

Chesbrough, H. W. (2003) The Era of Open Innovation, *MIT Sloan Management Review,* Vol. 44(3), pp. 35-41.

Child, J., Falkner, D. & Pitkethly, R. (2001) *The Management of International Acquisitions*. Oxford University Press, Oxford, UK

Cho, K.R. & Padmanabhan, P. (1995) Acquisition versus New Venture: The Choice of Foreign Establishment Mode by Japanese Firms. *Journal International Management,* Vol. 1, pp. 255–285.

Chou, H., Gloria, T. Y. & Xiangkang, Y. (2010) Rumors of Mergers and Acquisitions: Market Efficiency and Markup Pricing, *23rd Australasian Finance and Banking Conference 2010 Paper*

Clark, K. & Ofek, E., (1994) Mergers as A Means of Restructuring Distressed Firms: An Empirical Investigation. *Journal of Financial and Quantitative Analysis*, Vol. 29 (4), pp. 541–565.

Clarkson, P. M., Joyce, D. & Tutticci, I. (2006) Market Reaction to Takeover Rumour in Internet Discussion Sites, *Accounting and Finance,* Vol. 46 (1), pp. 31-52

Cohen, W. M. & Levinthal, D. A. (1989) Innovation and Learning: The Two Faces of R & D, *The Economic Journal,* Vol. 99(397), pp. 569-596.

Conner, K. R. (1991) A Historical Comparison of Resource-Based View and Five Schools of Thought within Industrial Organization Economics: Do We Have a New Theory of the Firm? *Journal of Management*, Vol. 17(1), pp. 121–154.

Conyon, M. J., Girma, S., Thompson, S., & Wright, P. W. (2002) The Productivity and Wage Effects of Foreign Acquisition in the United Kingdom. *Journal of Industrial Economics*, Vol. 50, pp. 85–102.

Cook, D. O., Easterwood, J. C. & Martin, J. D. (1992) Bondholder Wealth Effects of Management Buyouts, *Financial Management*, Vol. 21, p102.

Cosh, A.D. & Guest, P.M. (2001) The Long-Run Performance Of Hostile Takeovers: UK Evidence, *Centre for Business Research Working Paper* No. 215, Cambridge University.

Cosh, A.D., Hughes, A. & Singh, A. (1980) The Causes And Effects Of Take-Overs In The United Kingdom: An Empirical Investigation For The Late 1960s At The Microeconomic Level, in Mueller, D., *The Determinants and Effects of Mergers*, Oelgeschlager, Gunn & Ham, Cambridge, Mass.

Croci, E. (2007) Corporate Raiders, Performance, and Governance in Europe, *European Financial Management*, Vol. 13 (5), pp. 949–978.

Crook, T. R., Ketchen Jr., D. J., Combs, J. G., & Todd, S. Y. (2008) Strategic Resources and Performance: A Meta-Analysis. *Strategic Management Journal*, Vol. 29, pp. 1141–1154.

Cubbin, J. & Hall, G. (1979) The Use Of Real Cost As An Efficiency Measure: An Application To Merging Firms, *Journal of Industrial Economics*, Vol. 28(1), pp. 73-88.

Cudd, M. & Duggal, R. (2000) Industry Distributional Characteristics of Financial Ratios: An Acquisition Theory Application, *The Financial Review,* Vol. 41, pp. 105–20.

Dal Borgo, M, Goodridge, P, Haskel, J. & Pesole, A. (2012) Productivity and Growth in UK Industries: An Intangible Investment Approach, *Oxford Bulletin of Economics and Statistics*, online version at: http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0084.2012.00718.x/abstract

Danzon, P. M., Epstein, A. & Nichelson, S. (2004) Mergers and Acquisitions in the Pharmaceutical and Biotech Industry, *NBER Working Paper*, 10536,

Datta, D. & Puia, G. (1995) Cross-Border Acquisitions: An Examination of the Influence of Relatedness and Cultural Fit on Shareholder Value Creation in U.S. Acquiring Firms. *Management International Review,* Vol. 35, pp. 337–359.

Davis, P. S., Desai, A.B. & Francis, J.D. (2000) Mode Of International Entry: An Isomorphism Perspective, *Journal International Business Studies*, Vol. 31, pp. 239–258.

De Backer, K. & Sleuwaegen, L. (2002) Why Are Foreign Firms More Productive Than Domestic Firms? mimeo.

De Young, R. (1997) Bank Mergers, X-Efficiency, and the Market for Corporate Control, *Managerial Finance*, Vol. 23 , p1

Degryse H. & Ongena, S. (2005) Distance, Lending Relationships, and Competition, *Journal of Finance*, Vol. 60(1), 231-266

Delios, A. & Beamish, P.W. (1999) Ownership Strategy of Japanese Firms: Transactional, Institutional, and Experience Influence. *Strategic Management Journal,* Vol. 20, pp. 915–933.

Demaris, A. (1992) *Logit Modeling: Practical Applications,* Sage University Paper series on Quantitative Applications in the Social Sciences, 07-086, Newbury Park, CA

Demsetz, H. (1973a) *The Market Concentration Doctrine,* AEI-Hoover Policy Studies.

Demsetz, H. (1973b) Industry Structure, Market Rivalry and Public Policy, *Journal of Law and Economics,* Vol. 16, pp. 1-9

Demsetz, H. (1982) Barriers To Entry, *American Economic Review,* Vol. 72, pp. 47-57

DePamphilis, D.M. (2009) *Mergers, Acquisitions, and Other Restructuring Activities: An Integrated Approach to Process, Tools, Cases, and Solutions*, 5th. edn, Academic Press, San Diego, California.

Devos, E., Kadapakkam, P.R. & Krishnamurthy, S.S. (2008) How Do Mergers Create Value? A comparison of taxes, market power, and efficiency improvements as explanations for synergies, *Review of Financial Studies*, Vol. 22(3) from Net Library Database at Mohanlal Sukhadia University, Udaipur.

di Giovanni, J. (2002) What Drives Capital Flow? The Case Of Cross-Border M&A Activity And Financial Deepening, *Center for International and Development Economics Research Working Paper* C01-122, U.C. Berkeley (January)

Dickerson, A., Gibson, A.H. & Tsakalotos, E.E. (1997) The Impact of Acquisitions on Company Performance: Evidence from a Large Panel of UK Firms, *Oxford Economic Papers,* Vol. 49 (3) pp. 344-361.

Dickerson, P. A., Gibson D. H. & Tsakalotos, E. (2002) Takeover Risk and the Market for Corporate Control: The Experience of British Firms in the 1970s and 1980s. *International Journal of Industrial Organization,* Vol. 20, pp. 1167-1195

Dietrich, J.K. & Sorensen, E. (1984) An Application Of Logit Analysis To Prediction Of Merger Targets, *Journal of Business Research,* vol. 12(3), pp. 393-402

Doms, M. E. & J. B. Jensen (1998) *Comparing Wages, Skills, and Productivity between Domestically and Foreign-owned Manufacturing Establishments in the United States*, NBER Studies in Income and Wealth, Chicago and London: University of Chicago Press, Vol. 59, pp. 235-55.

Driffield, N. L. & Du, J., (2007) Privatisation, State Ownership and Productivity: Evidence from China, *International Journal of the Economics of Business*, Vol. 14(2), pp. 215–239

Driffield, N. L. (1997) *Global Competition and the Labour Market*, Amsterdam: Harwood Academic Publishers.

Driffield, N. L., Love, J. H. & Yang, Y. (2014) Technology Sourcing And Reverse Productivity Spillovers In The Multinational Enterprise: Global Or Regional Phenomenon? *British Journal of Management*, Vol. 25(1), pp. 24-41.

Driffield, N. L., Mickiewicz, T., & Temouri, Y. (2013) Institutional Reforms, Productivity and Profitability: From Rents to Competition? *Journal of Comparative Economics,* Vol. 41, pp. 583–600

Du, J. & Girma, S. (2012), Firm Size, Source of Finance and Growth – Evidence from China, *International Journal of the Economics of Business*, forthcoming

Du, J., Gong, Y. & Temouri, Y. (2014) High Growth Firms and Productivity – Evidencefrom the United Kingdom, *Nesta Working Paper* No. 13/04

DuMouchel, W. H. & Duncan, G. J. (1983) Using Sample Survey Weights In Multiple Regression Analyses Of Stratified Samples. *Journal of the American Statistical Association*, Vol. 78, pp. 535–43.

Dunning, J.H. & Cantwell, J.A. (1991) Mnes, Technology, And The Competitiveness Of European Industries, In G. R. Faulhaber and G. Tamburini (eds), *European Economic Integration*, Boston: Kluwer, pp. 117–48.

Dunning, J.H. (1977) Trade, Location of Economic Activity and the MNE: A Search for an Eclectic Approach. In Bertil Ohlin, Per-Ove Hesselborn, and Per Magnus Wijkman, eds., *The International Allocation of Economic Activity.* London: Macmillan.

Dunning, J.H. (1980) Toward an Electric Theory of International Production: Some Empirical Tests, *Journal of International Business Studies*, Vol. 11(1), pp. 9-31.

Dunning, J.H. (1988) The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions. *Journal of International Business Studies*, Vol. 19 (1), pp. 1-31.

Dunning, J.H. (1993) *Multinational Enterprises and the Global Economy*. Addison-Wesley Publishing, Reading, MA

Dunning, J.H. (2000) The Eclectic Paradigm as an Envelope for Economic and Business Theories of MNE Activity, *International Business Review*, Vol. 9, pp. 163-190.

Duso, T. Gugler, K. & Yurtoglu, B. (2010) Is The Event Study Methodology Useful for Merger Analysis? A Comparison of Stock Market and Accounting Data, *International Review of Law and Economics*, Vol. 30 (2) pp. 186-192

Dutz, M. A. (1989) Horizontal Mergers in Declining Industries, *International Journal of Industrial Organisation*, Vol.7 (1), pp. 11-37

Eckbo, B. E. (1986) Mergers and the Market for Corporate Control: The Canadian Evidence, *The Canadian Journal of Economics*, Vol. 19(2), pp. 236-260

Eiteman, D. K., Stonehill, A .I. & Moffett, M. H. (2006) *Multinational Business Finance*, 11th ed., Addison - Wesley, Reading, MA,

Elango, B. & Sambharya, R.B. (2004) The Influence of Industry Structure on the Entry Mode Choice of Overseas Entrants in Manufacturing Industries. *Journal of International Management*, Vol. 10, pp. 107–124.

Erramilli, M.K. & D'Souza, D.E. (1993) Venturing Into Foreign Markets: The Case of Small Service Firms, *Entrepreneurship Theory & Practice Journal*, Vol. 17 No. 4, pp. 29–41

Espahbodi, H & Espahbodi, P., (2003) Binary Choice Models and Corporate Takeover, *Journal of Banking and Finance*, Vol. 27, pp. 549–74

Fama, E.F. (1980) Agency Problems and The Theory Of The Firm, *Journal of Political Economy*, Vol. 88, pp. 288-307

Fama, E.F. (1991) Efficient Capital Markets IF, *Journal of Finance,* Vol. 46, *pp.*1575-1617

Fama, E.F., Fisher, L., Jensen, M.C. & Roll, R. (1969) The Adjustment of Stock Prices to New Information, *International Economic Review,* Vol. 10 No. 1, pp. 1-21

Feinberg, R.M., (1985) Sales at Risk: A Test of the Mutual Forbearance theory of Conglomerate Behaviour, *Journal of Business,* Vol. 58, pp. 225-241.

Fernandez-Val, I. & Vella, F. (2007) Bias Corrections for Two-Step Fixed Effects Panel Data Estimators *Department of Economics in its series Boston University, Working Paper* 2007-010

Ferreira, D., Ornelas, E. & Turner L. J. (2005) Ownership Structure and the Market for Corporate Control, Working Paper

Finkelstein, S. & Haleblian, J., (2002) Understanding Acquisition Performance: The Role of Transfer Effects. *Organisational Science.* Vol. 13, pp. 36–47.

Flury, B. & Riedwyl, H. (1988) *Multivariate Statistics: a Practical Approach*, Chapman and Hall, London.

Francis, A. (1980) Company Objectives, Managerial Motivations and the Behaviour of Large Firms: An Empirical Test of the Theory of the 'Managerial' Capitalism, *Cambridge Journal of Economics,* Vol. 4, pp. 349-61.

Franks, J. & Mayer, C. (1996) Hostile Takeovers and the Correction of Managerial Failure, *Journal of Financial Economics,* Vol. 40, pp. 163-81

Freund, C.L. & Djankov, S. (2000) Which Firms Do Foreigners Buy? Evidence from the Republic of Korea, *World Bank Policy Research Working Paper* No. 2450,

Frey, R. & Hussinger, K. (2006) The Role of Technology in M&As: A Firm Level Comparisonof Cross-Border and Domestic Deals. *Discussion Paper* No. 06-069, ZEW

Fridolfsson, S.O. & Stennek, J. (1999) Why Mergers Reduce Profits, And Raise Share Prices – A Theory of Pre-emptive Merger, mimeo

Fukao, K., Ito, K., & Kwon, H.U. (2005) Do Out-in M&As Bring Higher TFP to Japan? An Empirical Analysis Based on Micro‐data on Japanese Manufacturing Firms. *Journal of the Japanese and International Economies*, Vol. 19, pp. 272‐301

Fukao, K., Ito, K., Kwon, H.U. & Takizawa, M. (2006) Cross‐Border Acquisitions and Target Firms' Performance: Evidence from Japanese Firm‐Level Data. *NBER Working Paper* No. 12422.

Gao, Y.& Oler, D (2012) Rumors and Pre-Announcement Trading: WhySell Target Stocks Before Acquisition Announcements? *Review of Quantitative Finance and Accounting*, Vol. 39(4), pp 485-508.

George, K. (1989) Do We Need A Merger Policy, in Fairburn, J. and Kay, J., eds., *Mergers and Merger Policy,* Oxford University Press.

Geroski, P. A. & Gregg, P. (1997) *Coping with Recession: UK Company Performance in Adversity*, Cambridge University Press.

Geroski, P. A. (1988) The Effect of Entry on Profit Margins in the Short and the Long Run. *London Business School Centre for Business Strategy Working Paper* No. 47,

Ghosh, A., (2001) Does Operating Performance Really Improve Following Corporate Acquisitions? *Journal of Corporate Finance,* Vol. 7 (2), pp. 151–178.

Gioia, C. & Thomsen, S. (2002) International Mergers and Acquisitions and the Market for Lemons. International Acquisitions and Firm Performance in Denmark 1990-1997, Paper proposed for presentation at *the 28th*

European International Business Academy Conference, Athens, Greece.

Girma, S. & Görg, H. (2007) Multinationals' Productivity Advantage: Scale or Technology? *Economic Inquiry*, Vol. 45(2), pp. 350-362

Girma, S. (2005) Technology Transfer from Acquisition FDI and the Absorptive Capacity of Domestic Firms: An Empirical Investigation. *Open Economics Review*, Vol. 14, pp. 165 - 178.

Girma, S., Greenaway, A. & Kneller, R. (2004) Does exporting increase productivity? A micro-econometric analysis of matched firms, *Review of International Economics*, Vol. 12(5), pp. 855-866

Girma, S., Greenaway, D. & Wakelin, K. (2001) Who Benefits from Foreign Direct Investment in the UK? *Scottish Journal of Political Economy*, Vol. 48, pp. 119–133.

Girma, S., Kneller, R. & Pisu, M. (2007) Do Exporters Have Anything to Learn from Foreign Multinationals? *European Economic Review*, Vol. 51, pp. 993 - 1010

Girma, S., Thompson, S. & Wright, P. (2006) International Acquisitions, Domestic Competition and Firm Performance, *International Journal of the Economics of Business*, Vol. 13, pp. 335 - 349

Goergen, M. & Renneboog, L. (2004) Shareholder Wealth Effects of European Domestic and Cross-Border Takeover Bids, *European Financial Management*, Vol. 10 (1), pp. 9-45.

Gonzalez, P., Vasconcellos, G. M. & Kish, R. J. (1998) Cross - Border Mergers and Acquisitions: The Under valuation Hypothesis. *The Quarterly Review of Economics and Finance*, Vol. 38, pp. 25 - 45

Gort, M. (1969) An economic disturbance theory of mergers, *Quarterly Journal of Economics*, Vol. 83, pp.624-42

Grant, R. M. (1996) Toward a Knowledge-Based Theory of the Firm, *Strategic Management Journal*. Vol. 17, pp. 109-122.

Greer, D. E. (1986) Acquiring In Order To Avoid Acquisition, *Antitrust Bull*, spring, pp. 155-186

Grifell-Tatje, E. &Lovell, C. A. K. (1999) Profits And Productivity, *Management Science*, Vol. 45 (9), pp. 1177-1193

Griffith, R. & Simpson, H. (2001) Characteristics of Foreign - Owned Firms in British Manufacturing, *IFS Working Papers* (W01/10), The Institute for Fiscal Studies, London, UK

Griffith, R. Redding, S. & Simpson, H (2004) Foreign Ownership and Productivity: New Evidence from the Service Sector and the R&D, *Centre for Economic Performance, London School of Economics and Political Science*, London, UK.

Grimpe, C. & Hussinger, K. (2008a) Market and Technology Access Through Firm Acquisitions: Beyond One Size Fits All. *Discussion Papers* No. 08-037, ZEW.

Grimpe, C. & Hussinger, K. (2008b), Pre-empting Technology Competition through Firm Acquisitions, *Economics Letters*, Vol. 100, pp. 189-191.

Grinyer, J., Russell, A. & Collison, D. (1998) Evidence Of Managerial Short-Termism In The UK, *British Journal of Management*, Vol. 9, pp. 13-22.

Gugler, K., Mueller, D.C., Yurtoglu, B.B. & Zulehner, C., (2003) The effects of mergers: an international comparison. *International Journalof Industrial Organisation*, Vol. 21, pp. 625–653.

Hall, B.H. & Mairesse, J. (2006) Empirical Studies Of Innovation In The Knowledge-Driven Economy, *Economics of Innovation and New Technology,* Vol. 15 (4-5), pp. 289-299.

Hall, B. H. (2011) Innovation and productivity, *UNU-MERIT working paper*, 2011-028

Harford, J. (1999) Corporate Cash Reserves and Acquisitions, *Journal of Finance* Vol. 54(6), pp. 1969-1997.

Hargadon, A. B. (2002) Brokering Knowledge: Linking Learning and Innovation, in: B. M. Staw and R. M. Kramer (Hrsg.), *Research in Organizational Behavior*, Oxford, pp. 41-86.

Harris, R. & Robinson, C. (2002) The Impact of Foreign Acquisitions on Total Factor Productivity: Plant-level Evidence from UK Manufacturing, 1987-1992, *Review of Economics and Statistics*, Vol. 84, pp. 562-568

Harris, R. (2009) The Effect of Foreign Mergers and Acquisitions on UK Productivity and Employment, *UKTI final report*

Harris, R.I.D. (2005) Economics of the Workplace: Special Issue Editorial. *Scottish Journal of Political Economy,* Vol. 52(3), pp. 323-343

Harris, R.S. & Ravenscraft, D. (1991) The Role Of Acquisitions In Foreign Direct Investment: Evidence From The U.S. Stock Market. *Journal of Finance,* Vol. 46, pp. 825–844

Hart, M. & McGuinness, S. (2003) Small Firm Growth in the UK Regions 1994-1997: Towards an Explanatory Framework, *Regional Studies*, Vol. 37(2), pp. 109-122.

Harzing, A.W. (2002) Acquisitions versus Greenfield Investments: International Strategy and Management of Entry Modes. *Strategic Management Journal,* Vol. 23, pp. 211–227.

Hasbrouck, J. (1985) The Characteristics Of Takeover Targets: Q And Other Measures, *Journal of Banking and Finance,* Vol. 9, pp. 351-62.

Haspeslagh, P.C. & Jemison, D.B. (1991) *Managing Acquisitions: Creating Value through Corporate Renewal*. The Free Press, New York.

Hausman, J. A. & Wise, D. A. (1981) Stratification On Endogenous Variables And Estimation: The Gary Income Maintenance Experiment. In F. Manski and D. McFadden (eds.), *Structural Analysis of Discrete Data with Econometric Applications.* Cambridge, MA: MIT Press, pp. 365–91.

Hayn, C. (1989) Tax Attributes as Determinants of Shareholder Gains in CorporateAcquisitions. *Journal of Financial Economics,* Vol. 23, pp. 121–154.

Hayward, M. L. A. & Hambrick, C. D. (1997) Explaining the Premiums paid for Large Acquisitions: Evidence of CEO Hubris. *Administrative Science Quarterly*, Vol. 42(1) pp. 103-127

Hayward, M. L. A., (2002) When do firms learn from their acquisition experience? Evidence from 1990–1995. *Strategic Management Journal,* Vol. 23, pp. 21–39.

Healy, P.M., Palepu, K.G., & Ruback, R.S. (1992) Does Corporate Performance Improve After Mergers? *Journal of Financial Economics*, Vol. 31, pp. 135–175.

Heckman, J. J. & Navarro-Lozano, S. (2004) Using Matching, Instrumental Variables, and Control Functions to Estimate Economic Choice Models, *The Review of Economics and Statistics,* Vol. 86, pp. 30–57.

Heckman, J. J. (1979) Sample Selection Bias As A Specification Error, *Econometrica*, Vol. 47, pp. 153–61

Heckman, J. J. (2000) Causal Parameters and Policy Analysis in Economics: A Twentieth Century Retrospective.

Quarterly Journal of Economics, Vol. 115, pp. 45-97

Helpman, E. & Krugman, P. (1985) *Market Structure and Foreign Trade*, MIT Press

Helpman, E. (1984) A Simple Theory of International Trade with Multinational Corporations. *Journal of Political Economy*, Vol. 92, pp. 451-471

Helpman, E., M.J. Melitz & Yeaple, S.R. (2004) Export Versus FDI with Heterogeneous Firm, *American Economic Review*, Vol. 94, pp. 300-316

Hennart, J.F. & Park, Y.R. (1993) Greenfield versus Acquisition: The Strategy of Japanese Investors in The United States, *Management Science.* Vol. 39, pp. 1054–1070.

Hennart, J.F. & Reddy, S. (1997) The Choice Between Mergers/Acquisitions And Joint Ventures: The Case Of Japanese Investors In The United States. *Strategic Management Journal*, Vol. 18, pp. 1–12.

Henry, D. (2002) Mergers: Why Most Big Deals Don'T Pay Off. *Business Week*, October 14, pp. 60–70

Herman, E.S. & Lowenstein, L. (1987) The Efficiency Effects Of Hostile Takeovers, in: J. Coffee, L. Lowenstein and S. Rose-Ackerman, (eds.) The impact of hostile takeover, OUP.

Higgins, M. J. & Rodriguez, D. (2006) The Outsourcing of R&D through Acquisitions in the Pharmaceutical Industry, *Journal of Financial Economics*, Vol. 80(2), pp. 351-383.

Higson, C. (1991) The Use Of Accounting Information In The Analysis Of Takeovers And Mergers, *in The Future Shape of Financial Reports: Research Studies*, pp. 33-60, ICAEW, London.

Hitt, M.A., Dacin, M. T., Levitas, E., Arregle, J. L. & Borza, A. (2000) Partner Selection In Emerging And Developed Market Contexts: Resource-Based And Organizational Learning Perspectives. *Academic Management Journal*, Vol. 43, pp. 449–467.

Hitt, M.A., Hoskisson, R.E., Ireland, R.D. & Harrison, J.S. (1991) Effects of acquisitions on R&D inputs and outputs, *Academic Management Journal*, Vol. 34, pp. 693–706.

Hitt, M.A., Ireland, R.D., Camp, S.M. & Sexton, D.L. (2001) Strategic Entrepreneurship: Entrepreneurial Strategies For Creating Wealth, *Strategic Management Journal*, Vol. 22 (Special Issue), pp. 479–491.

Hitt, M.A., Keats, B.W. & DeMarie, S.M. (1998) Navigating In The New Competitive Landscape: Building Strategic Flexibility And Competitive Advantage In The 21st Century, *Academic Management Executives*, Vol. 12(4), pp. 22–42

Hofstede, G. (1980) *Culture's Consequences: International Differences in Work-Related Values*, Sage, Beverly Hills, CA

Hoitash, R. & Krishnan, M. (2008) Herding, Momentum, And Investor Over-Reaction, *Review of Quantitative Finance and Accounting*, Vol. 30, pp. 25-47.

Holl, P. & Pickering, J.F. (1988) The Determinants And Effects Of Actual, Abandoned And Contested Mergers, *Managerial and Decision Economics*, Vol. 9, pp. 1-9

House, R., Javidan, M., Hanges, P. & Dorfman, P. (2002) Understanding Cultures And Implicit Leadership Theories Across The Globe: An Introduction To Project, *Global Journal of World Business*, Vol. 37 (1), pp. 3-10

Houston, J.F., James, C.M. & Ryngaert, M.D. (2001) Where Do Merger Gains Come From? Bank Mergers from the Perspective of Insiders and Outsiders, *Journal of Financial Economics*, Vol. 60, pp. 285-331.

Huber, G.P. (1991) Organizational Learning: The Contributing Processes and Literatures, *Organisational Science*, Vol. 2 (special issue), pp. 88–115

Hughes, A (1989) The Impact Of Merger: A Survey Of Empirical Evidence For The UK, in Fairbum, J. and Kay, J., eds., *Mergers and Merger Policy,* Oxford University Press.

Hughes, A. & Saleheen, J. (2012) UK Labour Productivity Since The Onset Of The Crisis - An International And Historical Perspective, *Bank of England Quarterly Bulletin*, Vol. 52(2), pp. 138-146

Imbens (2004) Non-Parametric Estimation Of Average Treatment Effects Under Exogeneity: A Review. *Review of Economics and Statistics,* Vol. 86(1), pp. 4–29.

Inkpen, A.C., Sundaram, A.K. & Rockwood, K. (2000) Cross-Border Acquisitions of U.S. Technology Assets, *California Management Review,* Vol. 42 (spring), pp. 50–70

Jarrell, G. A & Poulsen, A. (1989) The Returns to Acquiring Firms in Tender Offers: Evidence from Three Decades, *Financial Management*, Vol. 18, pp.12-19.

Jarrell, G. A., Brickley, J. A. & Netter, J. M. (1988) The Market For Corporate Control: The Empirical Evidence Since 1980, *Journal of Economic Perspectives*, Vol. 2, pp.49-68.

Jensen, M.C. & Meckling, W. (1976) Theory Of The Firm: Managerial Behavior, Agency Costs And Ownership Structure, *Journal of Financial Economics,* Vol. 4(3), pp. 05-60.

Jensen, M.C. & Ruback, R.S. (1983) The Market For Corporate Control, The Scientific Evidence, *Journal of Finance Economics*, Vol. 11, pp. 5-50

Jensen, M.C. & Smith, C.W. (1985) Stockholder, Manager, And Creditor Interests: Applications Of Agency Theory, in E Altman and M.G. Subrahmanyam eds. *Recent advances in Corporate Finance,* Irwin, Illinois.

Jensen, M.C. (1986a) The Takeovers Controversy: Analysis And Evidence, *Midland Corporate Finance Journal*, Vol. 4 (2), pp. 6-32.

Jensen, M.C. (1986b) Agency Costs of Free Cash Flow, Corporate Finance and Takeovers, *American Economic Review*, Vol.76, pp. 323-329.

Jensen, M.C. (1987) The Takeover Controversy: Analysis And Evidence, in: J. Coffee, L. Lowensteinand S. Rose-Ackerman, eds., *The Impact of hostile takeover,* Oxford University Press, New York.

Jensen, M.C. (1988) Takeovers: Their Causes and Consequences. *Journal of Economic Perspectives*, Vol. 2, pp. 21-48.

Jensen, M.C. (2005) Agency Costs of Overvalued Equity, *Financial Management*, Vol. 34(1), pp. 5-19

Jovanovic, B. & Rousseau, P. L. (2008) Mergers as Reallocation, *the Review of Economics and Statistics,* Vol. 90(4), pp. 765–776.

Kamien, M. I. & Zang, I. (1990) The Limits Of Monopolization Through Acquisition, *The Quarterly Journal of Economics*, Vol. 105(2), pp. 465–499

Kang, J. (1993) The International Market For Corporate Control, *Journal Financial Economics,* Vol. 34, pp. 345–371.

Kang, J.K. & Kim, J.M. (2010) Do Foreign Investors Exhibit A Corporate Governance Disadvantage? An Information Asymmetry Perspective, *Journal of International Business Studies*, Vol. 41, pp. 1415–1438

Kanniainen, V. (2000) Empire Building By Corporate Managers: The Corporation As A Savings Instrument, *Journal of Economics Dynamics & Control*, Vol. 24, pp. 127-142

Karim, S. & Mitchell, W. (2000) Path-Dependent and Path-Breaking Change: Reconfiguring Business Resources Following Acquisitions in the US Medical Sector, 1978-1995. *Strategic Management Journal*, Vol. 21(10/11), pp. 1061-1081.

Karpaty, P. (2007) Productivity Effects of Foreign Acquisitions in Swedish Manufacturing: The FDI Productivity Issue Revisited, *International Journal of the Economics of Business*, Vol. 14, pp. 241-260.

Kelly, G. & Tippett, M. (1991) Economic And Accounting Rates Of Return: A Statistical Model, *Accounting and Business Research*, Vol. 21, pp.321-29

Kirca, A. H., Hult, G. T. M., Roth, K., Cavusgil, S. T., Perry, M., Akdeniz, M. B., Deligonul, S. Z., Mena, J. A., Pollitte, W. A., Hoppner, J. J., Miller, J. C., &White, R. C. (2011). Firm-Specific Assets, Multinationality, And Firm Performance: A Meta-Analytic Review And Theoretical Integration. *Academy of Management Journal*, Vol. 54(1), pp. 47-72

Klein, P. G., (2001) Were The Acquisitive Conglomerates Inefficient? Rand, *Journal of Economics*, Vol. 32: pp. 745-761

Kogut, B. & Singh, H. (1988) The Effect Of National Culture On The Choice Of Entry Mode, *Journal of International Business Studies*, Vol. 19, pp. 411–432.

Kohli R. & Mann B.J.S. (2012) Analyzing Determinants of Value Creation in Domestic and Cross-Border Acquisitions in India, *International Business Review*, Vol. 21(6), pp. 998-1016

Koke, J. (2000) Control Transfers in Corporate Germany: Their Frequency, Causes and Consequences. *ZEW Discussion Paper* No. 00-67, Mannheim.

Koke, J. (2004) The Market for Corporate Control in a Bank-based Economy: A Governance device? *Journal of Corporate Finance* Vol. 10, pp. 53-80.

Krug, J.A & Hegarty, W.H. (2001) Research Notes And Commentaries: Predicting Who Stays And Leaves After An Acquisition: A Study Of Top Managers In Multinational Firms. *Strategic Management Journal*, Vol. 22, pp. 185–196.

Krug, J.A.& Nigh, D. (2001) Executive Perceptions In Foreign And Domestic Acquisitions: An Analysis Of Foreign Ownership And Its Effect On Executive Fate. *Journal of World Business*, Vol. 36 (1), pp. 85–105.

Kumar, M.S. (1984) *Growth, Acquisition and Investment*, Cambridge University Press.

Lachapelle, T. (2011) *Short the Rumor Pays 14% on Takeover Tales That Don't Come True*, [Homepage of Bloomberg], [Online]. Available: www.bloomberg.com. [2011, May 31]

Lambert, R. & Frenz, M. (2008), Innovation Modes and Productivity in the UK, *BIS Research Report*, Reference ID: DIUS-RR-08-12

Lancaster, T. (2000) The Incidental Parameters Problem Since 1948, *Journal of Econometrics*, Vol. 95, pp. 391-414.

Lane, C. & Probert, J. (2007) The External Sourcing of Technological Knowledge by U.S. Pharmaceutical Companies: Strategic Goals and Inter-Organizational Relationships, *Industry and Innovation*, Vol. 14(1), pp. 5-25.

Lang, L., Ofek, E. & Stulz, R. M. (1996) Leverage, Investment, and Firm Growth, *Journal of Financial Economics*, Vol. 40, pp. 3-30.

Lang, L., Stulz, R. & Walkling, R. (1991) A Test of the Free Cash Flow Hypothesis: The Case of Bidder Returns, *Journal of Financial Economics*, Vol. 29(2), pp. 315-335.

Larsson, R. & Finkelstein, S. (1999) Integrating Strategic, Organizational, And Human Resource Perspective On Mergers And Acquisitions: A Case Survey Of Synergy Realization, *Organisational Science, Vol.* 10, pp. 1–26.

Lee, T. & Caves, R. (1998) Uncertain Outcomes Of Foreign Investment: Determinants Of The Dispersion Of Profits After Large Acquisitions. *Journal of International Business Studies*, Vol. 29 (3) pp. 563-582.

Lehto, E. & Böckerman, P. (2008) Analysing the Employment Effects of Mergers and Acquisitions, *Journal of Economic Behavior and Organization*, Vol. 68(1), pp. 112-124.

Lemmon, M., Ma, Y.Y., & Tashjian, E. (2009) Survival Of The Fittest? Financial And Economic Distress And Restructuring Decisions in Chapter 11, *Paper presented at the Third Singapore Conference on Finance, Singapore.*

Leung, D., Meh, C. & Terajima, Y. (2008) Firm Size and Productivity, *Bank of Canada Working Paper* 2008-45

Leuven, E., & Sianesi, B. (2003) PSMATCH2: Stata Module To Perform Full Mahalanobis And Propensity Score Matching, Common Support Graphing, And Covariate Imbalance Testing, *Economics Papers Version 1.2.3.*

Levinsohn, J. & Petrin, A. (2003) Estimating Production Functions Using Inputs To Control For Unobservables, *Review of Economic Studies*, Vol. 70(2), pp. 317-342

Levinthal, D. A. & March, J. G. (1993) The myopia of learning, *Strategic Management Journal*, Vol. 14, pp. 95–112.

Levy, H. & Sarnat, M. (1970) Diversification, Portfolio Analysis and the Uneasy Case for Conglomerate Mergers, *Journal of Finance*, Vol. *25*, pp.795-802

Lewellen, W., Loderer, C.& Rosenfeld, A. (1985) Decisions and Executive Stock Ownership in Acquiring Firms, *Journal of Accounting and Economics*, Vol. 7, pp. 209-231

Lewis, D. & Webb, R. J. (2007) Potential Cost Synergies from Banks Acquiring Real Estate Brokerage Services, *Journal of Banking & Finance*, Vol.31, pp. 2347-2363

Li, J. & Guisinger, S. (1991) Comparative Business Failures Of Foreign-Controlled Firms In The United States, *Journal of International Business Studies*, Vol. 22, pp. 209–224.

Lichtenberg, F.R. & Siegel, D. (1987) Productivity and Changes in Ownership of Manufacturing Plants, *Brookings Papers on Economic Activity*, Vol. 3, pp. 643–673.

Lichtenberg, F.R. & Siegel, D. (1990) The Effects of Leveraged Buyouts on Productivity and Related Aspects of Firm Behaviour, *Journal of Financial Economics*, Vol. 27, pp. 165–194.

Linn, S., & Switzer, J. (2001) Are Cash Acquisitions Associated With Better Post Combination Operating Performance Than Stock Acquisitions? *Journal of Banking Finance*, Vol. 25, pp. 1113–1138.

Lipsey, R. E. & Feliciano, Z. (2002) Foreign Entry into U.S. Manufacturing by Takeovers and the Creation of New Firms, *NBER Working Papers* 9122, National Bureau of Economic Research, Inc.

Littlechild, S. (1989) Myths and Merger Policy, in Fairburn, J. and Kay, J. (eds.) *Mergers and Merger Policy,*

Oxford University Press

Lubatkin, M. (1987) Merger Strategies and Stockholder Value, *Strategic Management Journal,* Vol. 8, pp. 39-53

Lubatkin, M., Calori, R., Very, P. & Veiga, J.F. (1998) Management Mergers across Borders: A Two Nation Exploration Of A Nationally Bound Administrative Heritage. *Organisational Science.* Vol.9, pp. 670–684.

Madhok, A. (1997) Cost, Value and Foreign Market Entry Mode: The Transaction and The Firm. *Strategic Management Journal,* Vol. 18, pp. 39–61.

Magee, L., Robb, A. L. & Burbridge, J. B. (1998) On The Use Of Sampling Weights When Estimating Regression Models With Survey Data. *Journal of Econometrics,* Vol. 84, pp. 251–71.

Mahoney, J. T. & Pandian, J. R. (1992) The Resource-Based View within the Conversation of Strategic Management, *Strategic Management Journal,* Vol. 13(5), pp. 363-380.

Maksimovic, V. & G. Phillips (2001) The Market For Corporate Assets: Who Engages In Mergers And Asset Sales And Are There Efficiency Gains? *Journal of Finance*, Vol. 56, pp. 2019-2064.

Malhotra S., Sivakumar K. & Zhu P. (2009) Distance Factors and Target Market Selection: the Moderating Effect of Market Potential. *International Marketing Review*, Vol. 26(6), pp. 651-673

Malmendier, U. & Tate, G. (2005) CEO Overconfidence and Corporate Investment, *Journal of Finance,* Vol. 60 (6), pp. 2661-2700.

Malmendier, U. & Tate, G. (2008) Who Makes Acquisitions? CEO Overconfidence and the Market'S Reaction, *Journal of Financial Economics*, Vol. 89, pp. 20-43

Manne, H.G. (1965) Mergers and the Market for Corporate Control, *Journal of Political Economy,* Vol.73, pp. 110-120.

Manson, S., Stark, A. & Thomas, H. (1993) A Cash Flow Analysis Of The Operational Gains From Takeovers, *Working Paper No 93/04,* University of Essex.

Markides, C.C. & Ittner, C.D. (1994) Shareholder Benefits From Corporate International Diversification: Evidence From U.S. International Acquisitions. *Journal of International Business Studies,* Vol. 25, pp. 343–367.

Markusen, J.R. & Venables, A.J. (1998) Multinational Firms and the New Trade Theory, *Journal of International Economics*, Vol. 46, pp. 183-203

Markusen, J.R. (1995) The Boundary of Multinational Enterprises and the Theories of International Trade. *Journal of Economic Perspectives*, Vol. 9, pp. 169-189

Markusen, J.R. (2002) *Multinational Firms and the Theory of International Trade,* Cambridge, MA: MIT Press.

Marris, R.L. (1963) A Model of 'Managerial' Enterprise, *Quarterly Journal of Economics,* Vol. 77(2), pp.185-209

Martin, X., Swaminathan, A. & Mitchell, W. (1998) Organizational Evolution In The Inter-Organizational Environment: Incentives And Constraints On International Expansion Strategy, *Administrative Science Quarterly*, Vol. 43, pp. 566–601.

Martynova, M. & Renneboog, L. (2006) Mergers And Acquisitions In Europe: The Fifth Takeover Wave, In: Renneboog, L. (Ed.), *Advances in Corporate Finance and Asset Pricing*. Elsevier, Amsterdam.

Martynova, M. & Renneboog, L. (2008) A Century of Corporate Takeovers: What Have We Learned and Where Do We Stand? *Journal of Banking and Finance,* Vol. 32(10), pp. 2148-2177.

Martynova, M., Oosting, S. & Renneboog, L. (2007) Long-Term Performance Of European Mergers And Acquisitions, In: Gregoriou, G., Renneboog, L. (Eds.), *International Mergers and Acquisitions Activity since 1990: Quantitative Analysis and Recent Research.* Elsevier, Massachusets.

Mason, G., Bishop,K. & Robinson,C. (2009) *Business Growth and Innovation: The wider impact of rapidly-growing firms in UK city-regions*, edited by NESTA. London.

Matsusaka, J. G. (1993) Takeover Motives During The Conglomerate Merger Wave, *Rand Journal of Economics*, Vol. 24 (3), pp. 357-379

Mattes, A. (2010) International M&A: Evidence On Effects Of Foreign Takeovers, *IAW Discussion Papers* 60

McGuckin, R.H. & Nguyen, S.V. (2001) The Impact of Ownership Changes: a View from Labour Markets. *International Journal of Industrial Organization*, Vol. 19, pp. 739-762

Meeks, G.& Meeks, J.G. (1981) Profitability Measures As Indicators Of Post-Merger Efficiency, *Journal of Industrial Economics*, Vol. 29, pp. 335-344

Meeks, G. (1977) *Disappointing Marriage: A Study of the Gains from Merger,* Cambridge University Press

Melitz, M. J. (2003) The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity, *Econometrica Econometric Society*, Vol. 71(6), pp. 1695-1725.

Mitchell, M. L. & Mulherin. J. H. (1996) The Impact of Industry Shocks on Takeover and Restructuring Activity.*Journal of Financial Economics*, Vol. 41, pp. 193-229.

Moden, K. M. (1998) Foreign Acquisitions of Swedish Companies: Effects on R&D and Productivity, IUI, Stockholm, mimeograph

Moeller, S.B., Schlingemann, F.P. & Stulz, R.M. (2004) Firm Size And The Gains From Acquisitions, *Journal of Financial Economics*, Vol. 73, pp. 201–228.

Moeller, S.B., Schlingemann, F.P. & Stulz, R.M. (2005) Wealth Destruction On A Massive Scale? A Study Of Acquiring-Firm Returns In The Recent Merger Wave. *Journal of Finance, Vol.* 60 (2), pp. 757–782.

Moen, O., & Servais, P. (2002) Born Global Or Gradual Global? Examining The Export Behavior Of Small And Medium-Sized Enterprises, *Journal of International Marketing*, Vol. 10(3) pp. 49–72

Moffitt, R. A. (2004) Introduction To The Symposium On The Econometrics Of Matching, *Review of Economics and Statistics*, Vol. 86(1), pp. 1-3

Morck, R. & Yeung, B., (1992) Internalization: An Event Study Test. *Journal of International Economics. Vol.*33, pp. 41–56.

Morck, R., Shleifer, A. & Vishny, R. W. (1988) Characteristics Of Targets Hostile And Friendly Takeovers, *in Auerbach, ed.*, pp. 101-136

Morosini, P., Shane, S. & Singh, H. (1998) National Cultural Distance And Cross-Border Acquisition Performance, *Journal of International Business Studies, Vol.* 29, pp. 137–158

Motta, M. (2004) *Competition Policy Theory and Practice*, Cambridge University Press, Cambridge

Mueller, D.C. & Sirower, M. L. (2003) The Causes of Mergers: Tests Based on the Gains to Acquiring Firm's Shareholders and Size of Premia. *Managerial and Decision Economics*, Vol. 24, pp. 373-391.

Mueller, D.C. (1969) A Theory of Conglomerate Mergers, *Quarterly Journal of Economics*, Vol. 83, pp. 643-659.

Mueller, D.C. (1972) A Life Cycle Theory Of The Firm, *The Journal of Industrial Economics*, Vol. 20(3), pp. 199-219

Mueller, D.C. (1980) The United States, 1962–1972. In: Mueller, D.C. (Ed.), The Determinants and Effects of Mergers: An International Comparison. Oelgeschlager, Gunn and Hain, Cambridge, pp. 271–298.

Mueller, D.C. (1985) Mergers And Market Share. *The Review of Economics and Statistics,* Vol. 67 (2), pp. 259-267.

Mueller, D.C. (1989) Mergers: Causes, Effects And Policies, *International Journal of Industrial Organisation,* Vol. 7, pp. 1-10

Mueller, D.C. (1992) Mergers, in Newman, P., Milgate, M. and Eatwell, J., eds., *The New Paigrave Dictionary of Money and Finance*, Macmillan.

Mueller, D.C. (2001) The Finance Literature On Merge: A Critical Survey, *EARIE Conference*, Dublin

Mukherjee, K. T., Kiymaz, H. & Baker, K. H. (2004) Merger Motives and Target Valuation: A Survey of Evidence from CFOs, *Working Paper,* American University, Kogod School of Business

Myers, S. C. & Majluf, N. S. (1984) Corporate Financing And Investment Decisions When Firms Have Information That Investors Do Not Have, *Journal of Financial Economics*, Vol. 13(2), pp. 187-221

Neary, J. P. (2007) Cross-Border Mergers as Instruments of Comparative Advantage, *Review of Economic Studies*, Vol. 74 (4), pp. 1229-57

Nelson, R. & Winter, S. (1982) *An Evolutionary Theory of Economic Change*, Cambridge.

Nicholls-Nixon, C. L. & Woo, C. Y. (2003) Technology Sourcing and Output of Established Firms in a Regime of Encompassing Technological Change, *Strategic Management Journal,* Vol. 24(7), pp. 651-666

Nitsch, D., Beamish, P. & Makino, S. (1996) Entry Mode And Performance Of Japanese FDI In Western Europe. *Management International Review.* Vol. 36, pp. 27–43.

Nocke, V., & Yeaple, S. (2007) Cross-Border Mergers And Acquisitions Vs. Greenfield Foreign Direct Investment: The Role Of Firm Heterogeneity, *Journal of International Economics*, Vol. 72, pp. 336-365.

Norback, P.J. & Persson, L. (2008) Globalization and Profitability of CrossBorder Mergers and Acquisitions, *Economic Theory*, Vol. 35, pp. 241-266

North S. D. (2001) The Role of Managerial Incentives in Corporate Acquisitions: The 1990s evidence. *Journal of Corporate Finance,* Vol. 7, pp. 125-149.

Nyman, S. & Silbertson, A. (1978) The Ownership and Control of Industry, *Oxford Economic Papers,* Vol. 30, pp.74-103

Olie, R. (1994) Shades Of Culture And Institutions In International Mergers, *Organisational Studies,* Vol. 15, pp. 381–405

Olley, S.G., & Pakes, A. (1996) The Dynamics Of Productivity In The Telecommunications Equipment Industry. *Econometrica*, Vol. 64(6), pp. 1263-1297

Palepu, K.G. (1986) Predicting Takeover Targets: A Methodological and Empirical Analysis, *Journal of Accounting and Economics*, Vol. 8, pp. 3-35

Pan, Y., & Tse, D.K. (2000) The Hierarchical Model Of Market Entry Modes. *Journal of International Business*

Studies, Vol. 31, pp. 535–554.

Parmigiani, A. (2007) Why Do Firms Both Make and Buy? An Investigation of Concurrent Sourcing, *Strategic Management Journal*, Vol. 28(3), pp. 285-311

Peacock, A. & Bannock, G. (1991) *Corporate Takeovers and the Public Interest*, Aberdeen University Press

Peteraf, M. A. (1993) The Cornerstones of Competitive Advantage: A Resource-Based View, *Strategic Management Journal*, Vol. 14(3), pp. 179-191.

Pedro, J. G. & Pedro, M. (2007) Effects Of Working Capital Management On SME Profitability, *International Journal of Managerial Finance*, Vol. 3(2), pp. 164-177

Pfaffermayer, M. & Bellak, C. (2002) Why Foreign-Owned Firms Are Different: A Conceptual Framework and Empirical Evidence for Austria, in R. Jungnickel, *Foreign-owned Firms: Are They Different? Houndsmill*: Palgrave Macmillan., pp. 13-57

Pickering, J. (1983) The Causes and Consequences of Abandoned Mergers, *Journal of Industrial Economics*, Vol. 31, pp.267-81

Pindyck, R. & Rubinfeld, D. (1981) *Econometric Models and Economic Forecasts*, 2nd edition, McGraw-Hill, New York

Piscitello, L. & Rabbiosi, L. (2002) *Foreign Entry Through Acquisition - the Impact on Labour Productivity and Employment*. Unpublished, Politecnico de Milano

Piscitello, L. & Rabbiosi, L. (2005) The Impact of FDI on Local Companies' Labour Productivity: Evidence from the Italian Case. *International Journal of the Economics of Business*, Vol. 12, pp. 35–51.

Porter, M.E. (1987) From Competitive Advantage To Corporate Strategy, *Harvard Business Review, Vol.* 65(3), pp. 43-59

Powell, R. & Stark, A.W. (2005) Does Operating Performance Increase Post-Takeover For UK Takeovers? A Comparison Of Performance Measures And Benchmarks, *Journal Corporate Finance, Vol.* 11 (2), pp. 293–317

Powell, R. & Thomas, H. (1994) Corporate Control And Takeover Prediction, *Working Paper No 94/07*, University of Essex.

Powell, R.& Yawson, A., (2005) Industry Aspects Of Takeovers And Divestitures: Evidence From The UK, *Journal of Banking & Finance*, Vol. 29, pp. 3015–40.

Powell, R. (1997) Modeling Takeover Likelihood, *Journal of Business Finance and Accounting*, Vol. 24, pp. 1009–30

Powell, R. (2001) Takeover Prediction And Portfolio Performance: A Note, *Journal of Business Finance and Accounting*, Vol. 28, pp. 993–1011.

Powell, R. (2004) Takeover Prediction Models And Portfolio Strategies: A Multinomial Approach, *Multinational Finance Journal*, Vol. 8(1&2), pp. 35-72.

Puranam, P. & Singh, H. (1999) Rethinking M&A For The High Technology Sector, *Wharton School Working Paper*, Presented at AOM 2000 meetings

Qian, G. (1997) Assessing Product-Market Diversification Of U.S. Firms, *Management International Review*, Vol. 37(2), pp. 127-149.

Rajan, R., Volpin, P. & Zingales, L. (2000) The Eclipse Of The US Tire Industry, *in Kaplan*, pp. 51-92

Ranft, L. A. & Lord D. M. (2000) Organisational Learning About New International Market: Exploring The Internal Transfer Of Local Market Knowledge. *Journal International Business Studies,* Vol. 31(4), pp. 1-17

Ranft, L. A. & Lord D. M. (2002) Acquiring New Technologies And Capabilities: A Grounded Model Of Acquisition Implementation, *Organization Science*, Vol. 13 (4), pp.420-441

Rao, S., & J. Tang (2000) Are Canadian-Controlled Manufacturing Firms Less Productive Than Their Foreign Controlled Counterparts? Industry Canada, *Working Paper* Number 31, (February).

Rasmusen, E. (1988) Entry for buyout, *Journal of Industrial Economics*, Vol. 36(3), pp. 2812-2899

Rau, P.R., & Vermaelen, T. (1998) Glamour, Value and the Post-Acquisition Performance of Acquiring Firms, *Journal of Financial Economics*, Vol. 49, pp. 101-116.

Ravenscraft, D.J. & Scherer, F.M. (1987a) Life After Takeover, *Journal of Industrial Economics*, Vol. 36, pp. 147-55.

Ravenscraft, D.J. & Scherer, F.M. (1987b) *Mergers, Sell-offs, & Economic Efficiency*, Brookings Institution

Ravenscraft, D.J. & Scherer, F.M. (1989) The Profitability Of Mergers, *International Journal of Industrial Organisation*, Vol. 7(1), pp. 101-16

Rege, P. U. (1984) Accounting Ratios to Locate Take-over Targets, *Journal of Business Finance and Accounting, Vol.* 11(3), pp. 301-311

Reichheld, Frederick F. & Henske, Brad (1991) The only sure method of recouping merger premiums. *Journal of Retail Banking*, Vol. 8(2), pp. 9−17

Rhodes-Kropf, M. & Viswanathan, S. (2004) Market Valuation and Merger Waves, *The Journal of Finance*, vol. 59(6), pp. 2685-2718

Riley, R. & Robinson, C. (2011) Skills And Economic Performance: The Impact Of Intangible Assets On UK Productivity, *Evidence Report 39, UK Commission for Employment and Skills*.

Rindfleisch, A. & Moorman, C. (2001) The Acquisition and Utilization of Information in New Product Alliances: A Strength-of-Ties Perspective, *The Journal of Marketing*,Vol. 65(2), pp. 1-18.

Risberg, A. (2001) Employee Experiences Of Acquisition Processes. *Journal of World Business*, Vol. 36 (1), 58–84.

Roll, R. (1986) The Hubris Hypothesis of Corporate Takeovers, *Journal of Business*, Vol. 59, pp. 197-216.

Roller, L-H, Stennek, J. & Verboven, F. (2001) Efficiency gains from mergers, *European Economy*, Centre for Economic Policy Research, Report for EC Contract II/98/003, London, pp. 46–58.

Ron S. (*2009*) The Information Content of Business Combination Disclosure Level. *The Accounting Review* Vol. 84(1), pp. 239-270.

Rosenbaum, P. R. & Rubin, D. B. (1983) The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrika*, Vol. 70 (1), pp. 41–55.

Rosnow, R.L. (1987) Psychology of Rumor Reconsidered. *Psychological Bulletin*, Vol. 87, pp. 578-591

Rosnow, R.L. (1988) Rumor as Communication: A Contextualist Approach. *Journal of Communication*, Vol. 38,

pp. 12-28

Rossi, S. & Volpin, P. F. (2004) Cross-Country Determinants Of Mergers And Acquisitions, *Journal of Financial Economics*, Vol. 74, pp. 277–304

Ruane, F. & Ugur, A. (2004) Foreign Direct Investment and Productivity Spill-overs in Irish Manufacturing Industry: Evidence from Plant Level Panel Data, *International Journal of Economics and Business*, pp. 53-66.

Ruigrok, W. & Wagner, H. (2003) Internationalization and Performance: An Organizational Learning Perspective. *Management International Review*, Vol. 43(1), pp. 63-84.

Salis, S. (2008) Foreign Acquisition and Firm Productivity: Evidence from Slovenia, *World Economy*, Vol. 31, pp. 1030-1048.

Schausen, T. (2011) Shareholders Wealth of Acquirer in A Short Term of An Official M&A Announcement: An Event Study Of Acquisitions In The European Bank Sector 2000 – 2009, *Aarhus School of Business and Social Science*, University of Aarhus, Denmark

Scherer F.M. & Ross, D. (1990) *Industrial Market Structure and Economic Performance* Third Ed. Boston: Houghton Mifflin Co

Schiffbauer, M., Siedschlag, I. & Ruane, F. (2009) Do Foreign Mergers and Acquisitions Boost Firm Productivity? DYNREG working paper, *JEL classification*: F23, D24, O33

Schoar, A. (2002) Effects Of Corporate Diversification On Productivity, *Journal of Finance*, Vol. 57, pp. 2379–2403

Schwarz, G. E. (1978) Estimating The Dimension Of A Model, *Annals of Statistics*, Vol. 6 (2), pp. 461–464

Seth, A., Song, K.P. & Pettit, R.R. (2002) Value Creation and Destruction in Cross-Border Acquisitions: An Empirical Analysis of Foreign Acquisitions of U.S. firms. *Strategic Management Journal* 23, 921–940.

Shane, S. (1995) Uncertainty Avoidance And The Preference For Innovation Championing Roles, *Journal of International Business Studies*, Vol. 26, pp. 47–68.

Sharstri, K., Weston, J.F. & Copeland, T.E. (2005) *Financial Theory And Corporate Policy*, 4. edn, Addison-Wesley, Reading, Mass.

Shaver, J.M. (1998) Accounting For Endogeneity When Assessing Strategy Performance: Does Entry Mode Choice Affect FDI Survival? *Management Science.* Vol. 44, pp. 571–585.

Shih, S. H. M. (1994) Corporate Tax Incentives for Conglomerate Mergers: Model Development and Empirical Evidence. *Contemporary Accounting Research*, Vol. 10(2), pp. 453-481.

Shimizu, K. & Hitt, M.A. (2005) What Constrains Or Facilitates Divestitures Of Formerly Acquired Firms? *Journal of Management*, Vol. 31(1), pp. 50-72

Shimizu, K. (1999) Imperfect Learning: What Does An Organization Learn From Its Mistake? *Academy of Management Meeting Best Paper Proceedings*, Chicago: IL.

Shimizu, K., Hitt, M.A., Vaidyanath, D. & Pisano, V. (2004) Theoretical Foundations Of Cross-Border Mergers And Acquisitions: A Review Of Current Research And Recommendations For The Future, *Journal of International Management*, Vol. 10, pp. 307–353

Shleifer, A. & Vishny, R. W. (1997) A Survey Of Corporate Governance, *The Journal of Finance*, Vol. 52(2), pp.

737-783.

Shleifer, A. & Vishny, R. W., (2003) Stock Market Driven Acquisitions, *Journal of Financial Economics*, Vol. 70, pp. 295–311.

Shleifer, A. & Vishny, R.W. (1989) Management Entrenchment: The Case of Manager-specific Investments, *Journal of Financial Economics*, Vol. 25(1), pp. 123-139.

Singh, A. (1971) *Takeovers*, Cambridge University Press

Singh, H. & Montgomery, C.A. (1987) Corporate Acquisition Strategies And Economic Performance. *Strategic Management Journal*, Vol. 8(4), pp. 377-86.

Sinha, R. (2006) Regulation: The Market for Corporate Control and Corporate Governance. *Journal of Global Finance* Vol. 16(3), pp. 264-282.

Siriopoulos, C., Georgopoulos, A. & Tsagkanos, A. (2006) Does the Market for Corporate Control Hypothesis Explain Takeover Targets? *Applied Financial Economics* Forthcoming

Skinner, C. S., Holt, D. & Smith, T. M. (1989) *Analysis of Complex Surveys*, Chichester, John Wiley

Smith, C.W. (1986) Investment Banking And The Capital Acquisition Process, *Journal of Financial Economics, Vol.* 15, pp. 3-29

Sohal, A. S., Moss, S. & Ng, L. (2001) Comparing IT Success In Manufacturing And Service Industries, *International Journal Of Operations & Production Management*, Vol. 21(1/2), pp. 30 – 45

Stevens, D.L. (1973) Financial Characteristics of Merged Firms: A Multivariate Analysis, *The Journal of Financial and Quantitative Analysis*, vol. 8(2), pp. 149-158.

Stiebale, J. (2013) The Impact Of Cross-Border Mergers And Acquisitions On The Acquirers' R&D - Firm-Level Evidence, *International Journal of Industrial Organization*, Elsevier, vol. 31(4), pp. 307-321.

Straub, T. (2007) *Reasons for Frequent Failure in Mergers and Acquisitions: A Comprehensive analysis*, Deutsher University Verlag (DUV), Gabler Edition Wissenschaft, Wiesbaden

Sudarsanam, S. & Mahate, A.A.. (2003) Glamour Acquirers, Method Of Payment And Post-Acquisition Performance: The UK Evidence. *Journal of Business Finance and Accounting, Vol.* 30, pp. 299–341.

Sudarsanam, S. (2006) *Creating Value From Mergers And Acquisitions: The Challenges: An Integrated And International Perspective*, 5th printing edn, FT Prentice Hall, Harlow.

Switzer, J. (1996) Evidence On Real Gains In Corporate Acquisitions, *Journal of Economics and Business*, Vol. 48, pp. 443-61

Syverson, C. (2011) What Determines Productivity? *Journal of Economic Literature*, Vol. 49(2), pp. 326-65.

Teece, D. J., Pisano, G. & Shuen, A. (1997) Dynamic Capabilities and Strategic Management, *Strategic Management Journal*, Vol. 18(7), pp. 509-533.

Teece. D.J. (1982) Towards An Economic Theory Of The Multi-Product Firm, *Journal of Economic Behaviour and Organization*, Vol. 3, pp. 39 – 63

Tichy, G (2001) What Do We Know About Success And Failure Of Mergers? *Journal of Industry, Competition and Trade*, Vol. 1(4), pp. 347-394

Titman, S. & Grinblatt, M. (2006) *Financial Markets And Corporate Strategy,* 2nd. Edition, 8th Printing edn, Irwin/McGraw-Hill, Boston

Trautwein, F. (1990) Merger Motives And Merger Prescriptions, *Strategic Management Journal,* vol. 11(4), pp. 283-295

UNCTAD (2014) *World Investment Report 2014: Investing in the SDGs: An action Plan*, Annex Tables

Utton, M. A. (1974) On Measuring The Effects Of Industrial Mergers, *Scottish Journal of Political Economy*, Vol. 21, pp. 13-28

Van Biesebroeck, J. (2005) Firm Size Matters: Growth and Productivity Growth in African Manufacturing, *Economic Development and Cultural Change*, Vol. 53, pp. 546-583.

Vermeulen, F. & Barkema, H.G., (2001) Learning Through Acquisitions. *Academic Management Journal,* Vol. 44, pp. 457–476.

Very, P. & Schweiger, D.M. (2001) The Acquisition Process As A Learning Process: Evidence From A Study Of Critical Problems And Solutions In Domestic And Cross-Border Deals. *Journal of World Business*, Vol. 36 (1), pp. 11–31.

Very, P., Lubatkin, M., Calori, R. & Veiga, J. (1997) Relative Standing And The Performance Of Recent European Mergers, *Strategic Management Journal, Vol.* 18, pp. 593–615.

Veugelers, R. & Cassiman, B. (1999) Make and Buy in Innovation Strategies: Evidence from Belgian Manufacturing Firms, *Research Policy,* Vol. 28(1), pp. 63-80

Veugelers, R. (1997) Internal R & D Expenditures and External Technology Sourcing, *Research Policy*Vol. 26(3), pp. 303-315

Villalonga, B. & McGahan, A. M. (2005) The Choice among Acquisitions, Alliances, and Divestitures, *Strategic Management Journal,* Vol. 26(13), pp. 1183-1208.

Villalonga, B. (2004) Does Diversification Cause the 'Diversification Discount'? *Financial Management, Vol.*33, pp. 5-27.

Walter, R. M., (1994) The Usefulness Of Current Cost Information For Identifying Takeover Targets And Earning Above-Average Stock Returns, *Journal of Accounting, Auditing and Finance,* Vol. 9, pp. 349- 77.

Waring, G. F. (1996) Industry Differences in the Persistence of Firm-Specific Returns, *American Economic Review*, Vol. 86(5), pp. 1253-1265

Weber, Y., Shenkar, O. & Raveh, A. (1996) National And Corporate Fit In M&A: An Exploratory Study. *Management Science*, Vol. 4, pp. 1215-1227.

Weir, C. & Laing, D. (2003) Ownership Structure, Board Composition and the Market for Corporate Control in the UK: An Empirical Analysis. *Applied Economics*, Vol. 35, pp. 1747-1759

Weir, C., Laing, D. & Wright, M. (2005) Incentive Effects, Monitoring Mechanisms and the Threat from the Market for Corporate Control: An Analysis of the Factors Affecting Public to Private Transactions in the UK, *Journal of Business Finance and Accounting,* Vol. 32, pp. 909–944

Weitzel, U. & McCarthy K. J. (2009) Theory and Evidence on Mergers and Acquisitions by Small and Medium Enterprises, JEL classification: M13, G34

Wernerfelt, B. (1984) The Resource-Based View of the Firm. *Strategic Management Journal*, Vol. 5(2), pp. 171–180.

Wesson, T. (1999) A Model of Asset-Seeking Foreign Direct Investment Driven by Demand Conditions, *Canadian Journal of Administrative Sciences*, Vol. 16, pp. 1-10

Weston J. F., Siu, J. A. & Johnson, B. A. (2001) *Takeovers, Restructuring & Corporate Governance*, Third Edition-Prentice-Hall, Inc

Weston, F.J., Mitchell, M.L. & Mulherin, H.J. (2004) *Takeovers, Restructuring and Corporate Governance*, Pearson Prentice Hall, Upple Saddle River, New Jersey

Weston, J.F. & Masinghka, S.K. (1971) Tests Of The Efficiency Performance In Conglomerate Firms, *Journal of Finance*, Vol. 26(9), pp. 19-936

Williamson, O. (1963) Managerial Discretion And Business Behaviour, *American Economic Review,* Vol. 53, pp. 1032-57

Williamson, O. E. (1985) *The Economic Institutions of Capitalism,* Free Press, New York

Williamson, O.E. (1975) *Markets and Hierarchies: Analysis and Antitrust Implications*. Free Press, New York.

Wilson, B.D. (1980) The Propensity Of Multinational Companies To Expand Through Acquisitions, *Journal of International Business Studies.* Vol. 11, pp. 59–64.

Wooldridge, J. M. (1999) Asymptotic Properties Of Weighted M-Estimators For Variable Probability Samples, *Econometrica*, Vol. 67, pp. 1385–406.

Wooldridge, J. M. (2002) *Econometric Analysis Of Cross-Section And Panel Data,* MIT Press

Wortche, G. & Nguyen, T. (2011) The Impact Of M&A Transactions From Private Equity And Hedge Funds Empirical Evidence From Austria And Switzerland, *Journal of Financial Regulation and Compliance* Vol. 19(1), 2011 pp. 45-57

Yamada, T. & Taguchi, H. (2010) The Dynamic Impacts of M&A on Target Firm's Labor in Japan - Tentative Dynamic Panel Estimation by GMM, JEL Classification Codes: D21, M51

Yang, Y. & Driffield, N. L. (2012) Multinationality-Performance Relationship: A Meta-Analysis. *Management International Review*, Vol. 52 (1), pp. 23-47.

Zaheer, S. (1995) Overcoming The Liability Of Foreignness. *Acadamic Management Journal*, Vol. 38, 341–363.

Zollo, M. & Leshchinkskii, D. (2000) Can Firms Learn To Acquire? Do Markets Notice? *Working Paper, Financial Institutions Center*